GWRC Coastal Technical Assistance Program Report, FY2012

NA12NOS4190168, Task 47
9/30/2013

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Product #1: Training and Coordination Summary

Description: Consolidation of meeting minutes and program recommendations, and training materials from periodic training sessions.

Training & Coordination Events:

A. Regional Stormwater Technical Committee Meetings

These meetings helped define the direction of consultant and regional staff efforts to develop a useful regional model ordinance template used by localities to construct specific local stormwater ordinances, define local stormwater programs and amend other affected local ordinances to comply with State stormwater management regulations.

1. Meeting Minutes Summary (see Attachment 1.A)

B. Training Events

1. Stafford Co BMP Database Program User Training (4/16/13) (Attachment 1.B.1)
2. VAST Training Workshop (7/17/13) (Attachment 1.B.2)
3. Regional VSMP Legal Issues Workshop for Local Attorneys (8/28/13) (Attachment 1.B.2)

C. Other Coordination Activities

GWRC staff participated in the following CMZ-related meetings.

1. Coastal Partners Workshop (December 5-7, 2012)
2. Coastal Policy Team Meetings (December 5-7, 2012 & August 19, 2013)
3. Coastal PDC Coordination Meetings: March 12, 2013 @ MPPDC

Product #2: Regional Stormwater Management Program Implementation Study

Description: Program report summarizing local government plans to implement state stormwater management regulations, identifying necessary local ordinance amendments, local impediments to program implementation, potential regionally-coordinated ordinance language and program elements that must be added locally to comply with State regulations. Through the regional VSMP program development process (which is on-going as of 9/30/2013), it appears at this juncture that the individual localities prefer to implement all aspects of the VSMP program autonomously at the local level and rely on continued inter-governmental coordination of VSMP implementation through the on-going VSMP/environmental planning working group supported by GWRC through the coastal zone technical assistance grant.

Local implementation generally has proceeded along independent tracks with many of the details regarding necessary local code amendments unidentified as yet. In-depth work with Caroline County provides insight to the scope of local code amendments necessary to eliminate duplication and/or remove inconsistencies in local environmental protection requirements.

Report Components:

A. Preliminary regional VSMP Program Submission to VCR (4/1/13)

1. **Regional VSMP Model Ordinance Template (Attachment 2.A.1)**

2. **Regional VSMP Finance and Staffing Calculator (Attachment 2.A.1)**

B. Subsequent Deliverables

1. **Comparison of Stafford Co MS4 Program and VSMP Model Ordinance (Attachment 2.B.1)**

2. **Research paper on regional program financing options (Attachment 2.B.1)**

3. **Legal analysis of local environmental fee assessment authority (Attachment 2.B.3)**

4. **HB 2190 More Stringent Ordinances Legal Analysis (Attachment 2.B.4)**

5. **Stormwater Ordinance Development Legal Issues (Attachment 2.B.5)**

6. **Caroline Co. Draft Stormwater Management Ordinance (Attachment 2.B.6)**

7. **Caroline Co. Report on Impact of VSMP Ordinance on Comprehensive Plan and Other Sections of County Code of Ordinances (Attachment 2.B.7)**

8. **Caroline County Development Application, Review & Approval: Standard Operating & Procedures Manual (Attachment 2.B.8)**

Product #3: Benefits Accrued from Prior CZM Grants

Green Infrastructure Targeting Maps for Conservation Easement Outreach Efforts (Attachment 3.1)

These maps were developed to highlight those areas of each of the counties in PD 16 where the previous regional green infrastructure plan had prioritized lands for conservation. The high priority areas were then overlaid on the County parcel file layer and parcels were tagged which were located in the high priority areas. Then parcel ownership and other information from the parcel files for the high-priority areas was supplied to the Northern Virginia Conservation Trust (NVCT) to expedite their conservation outreach efforts in the highest priority areas (initially in Stafford County).

Product #4: Supplemental Technical Assistance Products

Description: The following additional products were developed to support local governments' implementation of VSMP program and other wise to assist and support local compliance with various environmental program requirements, including: Chesapeake Bay Preservation Act, the Chesapeake Bay TMDL Watershed Implementation Program, and GWRC's adopted Regional Green Infrastructure Plan.

1. **Caroline Co. Chesapeake Bay Resource Protection Area (RPA) Boundaries (Attachment 3.2 – transmittal letter & map illustration)**

   The original Resource Protection Area (RPA) area boundary maps developed through the State contract with Harland Bartholomew and Assoc. in the later 1980s or early 1990s were assembled, scanned and then the RPA boundary line feature was digitized so that the County could add the RPA area to the County GIS website layer collection, which includes the designated Resource Management Area (RMA) of the County.

2. **Caroline Co. Inventory of Common Plans of Development (Subdivisions, Commercial-Industrial PUDs Polygon Layer (Attachment 3.3 map illustration)**

   The current (8-22-13) County parcel file was enhanced by adding Subdivision name and subdivision (or PUD) type information provided by the County Planning Department, the Commission of Revenue's (COR) Office and the County Economic Development Office. The Planning Office staff designed those developments to be classified as "Major" subdivisions, and the assignment of parcels to various developments was based on the map numbers shown on the COR list of subdivisions as well as information contained in the parcel file in one of four description fields. A total of 275 developments or areas which may be subject to interpretation as being under a "common plan of development? (as defined in the VSMP regulations) were identified.

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Attachment 1.A: VSMP Technical Committee Meeting Minutes Summary

A. Attendance Record

Name	Representing:	12/14/2012	1/3/2013	2/7/2013	2/21/2013	2/27/2013	3/14/2013	3/21/2013	5/9/2013	6/13/2013	8/28/2013	9/12/2013	Total
Tim Ware	GWRC		1				1	1				1	**4**
Kevin Byrnes	GWRC	1	1	1	1	1	1	1	1	1	1	1	**11**
Kevin Utt	City of Fredericksburg	1	1	1	1	1	1	1	1	1	1	1	**11**
Kathleen Dooley	City of Fredericksburg								1		1		**2**
Troy Tignor	Spotsylvania Co.						1	1	1	1	1		**5**
Richard Street	Spotsylvania Co.					1				1	1		**3**
John Blair	Spotsylvania Co.						1						**1**
John Euson	Spotsylvania Co.						1						**1**
Craig Pennington	Spotsylvania Co.								1				**1**
James Bankahla	Spotsylvania Co.										1		**1**
Karl Holsten	Spotsylvania Co.										1		**1**
Steve Hubble	Stafford Co.	1	1		1	1	1	1	1	1	1	1	**10**
Rishi Baral	Stafford Co.	1	1	1	1								**4**
Paul Santay	Stafford Co.	1											**1**
Michael Finchum	Caroline Co.										1	1	**2**
David Nunnally	Caroline Co.	1	1	1	1	1	1	1	1	1		1	**10**
Stephen Manster	Bowling Green, Town						1	1	1	1			**4**
Alex & Nancy Long	Port Royal, Town						2	1					**3**
Jack Greene	King George Co.		1		1			1			1	1	**5**
Heather Strachan	King George Co.	1		1									**2**
Eric Gregory	King George Co.										1		**1**
Charles Lively	TCC SWCD	1	1	1	1				1	1			**6**
Sharon Connor	H-C SWCD												**0**
May Sligh	VDCR/VDEQ	1		1	1		1					1	**5**
Joan Salvati	VDCR/VDEQ												**0**
Doug Pickford	Cons. Concepts	1	1	1	1	1	1	1	1	1		1	**10**
Ross Pickford	Cons. Concepts	1	1	1	1	1	1		1	1	1	1	**10**
Chris Pomeroy	AquaLaw	1			1	1	1		1	1	1		**7**
Chip Rice	FOR	1	1	1	1	1	1	1					**7**
Eldon James	E. James & Assoc.		1	1		1		1	1	1	1	1	**8**
Patrick Coady	NVCT	1	1		1		1		1	1			**6**
J. Scott	NVCT	1		1									**2**
Nancy Hyde	NVCT						1						**1**
TOTAL		**15**	**13**	**12**	**13**	**10**	**18**	**12**	**14**	**13**	**14**	**11**	**145**

B. Meeting Highlights

From October 1 through mid-December, GWRC staff worked with local government staff to develop the grant application for DCR's local stormwater program implementation grant competition and securing the on-call consulting team expected to support the completion of the work proposed to be undertaken with

the grant. Upon award of the DCR grant, the Commission staff began formally working with the VSMP project steering committee and consultant team.

12/14/2012: organization meeting of the regional VSMP technical committee following the award of DCR local implementation assistance grant. Discussion with consulting team about future meeting schedules, consulting team's scope of work, meeting scheduling and sequencing of work effort.

1/3/2013: Committee meeting discussion of: a) targeting strategy for conservation easement outreach effort to support future local Chesapeake Bay TMDL WIP response, b) discussion of local progress in information-gathering requested by consultant team, including historic building and inspection permit activity; c) reminder of DCR's stormwater toolkit CD, d) use of GWRC-provided in-kind match tracking spreadsheet tool for accumulating local staff time related to VSMP implementation. Committee agreed to focus on the use of Stafford County MS4-based stormwater program as the basis for comparison with state VSMP requirements and the ultimate development of regional model ordinance template.

2/7/2013: Committee discussion of a) Stafford Co. stormwater program crosswalk table comparison to VSMP model ordinance, b) local progress in reporting VSMP-related staff positions, salaries and time commitment through the use of the staffing calculator spreadsheet model, c) general progress report discussion on local response to consultant information requests, d) progress report on GWRC intern development of conservation easement targeting strategy deliverables.

2/21/2013: Committee discussion on: a) progress in using VSMP staffing and operations calculator and missing data elements, b) update on Stafford Co stormwater program, ordinances and crosswalk comparison with VSMP model program, c) DCR communication from Wayne Davis about the VSMP deadline extension request process, d) discussion of amended work scope and budget for AquaLaw's consulting role on the implementation support team, resulting in allocation of more time/resources for:

- Investigation of legal funding options for local program implementation, and
- direct assistance to local government ordinance development and implementation technical/legal assistance.

2/27/2013: Committee discussion of: a) regionally-coordinated process for requesting VSMP deadline extension, b) discussion of use of green infrastructure/conservation easement targeting maps project, c) detailed discussion of model ordinance issues, including:

- permit and inspection fees
- differences between local programs
- progress in Spotsylvania on ordinance development

3/14/2013: Committee discussion of regional model ordinance development and other deliverables required along with local VSMP deadline extension request. Committee members agreed to get local extension request letter prepared, executed and returned to GWRC.

3/21/2013: Committee meeting to review final details associated with GWRC submission of regional VSMP deadline extension request before April 1, 2013 deadline.

5/9/2013: After taking April off to begin local implementation work, Committee met to discuss:

a) NFWF small watershed grant project opportunities and local interest,
b) general review of local progress in VSMP ordinance and program development,
c) discussion of DCR outline of VSMP and E&S training and education plans and priorities for consultant support in PD 16,

d) discussion of the effect of HB 2190 related to “more stringent local programs” in local VSMP implementation,
e) discussion with AquaLaw staff on local government legal support assistance,
f) impact of VSMP fee schedule on local development fee revenues,
g) need for technical/policy briefing for local government CAOs and policy makers
h) adopted Committee meeting schedule through end of 2013

6/13/13: Meeting to review progress of local VSMPl implementation, identifying where local staff were finding challenges with program design or implementation. Committee discussed local implementation support needs from VSMP consulting team and to define regional VSMP-related needs for legislative relief in 2014 General Assembly.

8/28/13: GWRC sponsored special training session for local government attorneys working with members of regional VSMP technical committee to discuss legal issues related to the development of local VSMP ordinances and program implementation.

9/12/13: meeting to plan the engagement of regional stakeholders affected by local implementation of the VSMP program and to define regional VSMP-related needs for legislative relief in 2014 General Assembly. Committee decided that anticipated training from regional non-governmental stakeholders (i.e., builders, developers, architectural-engineering consulting communities) should occur in late Spring (late March - mid April) 2014, after localities have finalized their local VSMP ordinances based on DEQ review comments.

Attachment 1.B.1: Stafford Co BMP Database Program User Training (4/16/13)

REGIONAL STORMWATER WORK GROUP

GEORGE WASHINGTON REGIONAL COMMISSION

REVIEW OF STAFFORD COUNTY STORMWATER FACILITY TRACKING DATABASE

AND DISCUSSION OF OPPORTUNITIES FOR REGIONAL COORDINATION

APRIL 15, 2013: 2:00PM

AGENDA

1. INTRODUCTIONS AND IDENTIFICATION OF MEETING PURPOSE
2. DEMONSTRATION AND REVIEW OF STAFFORD STORMWATER FACILITY DATABASE
3. QUESTION AND ANSWER/DISCUSSION
4. DEMONSTRATION AND REVIEW OF STAFFORD STORMWATER OUTFALL DATABASE
5. QUESTION AND ANSWER/DISCUSSION
6. OPPORTUNITIES FOR REGIONAL COORDINATION ON STORMWATER FACILITY TRACKING
7. NEXT STEPS

Attendance:
Steve Hubble, Stafford Co DPW
Paul Santay, Stafford Co DPW
Kevin Byrnes, GWRC
David Nunnally, Caroline Co. Planning Dept.

Meeting Notes: Due to unexpected County computer system disruption, the demonstration of the outfall database was postponed. After the review of County BMP inventory database, Caroline Co staff expressed interest in using the facilities database to catalog the existing County BMP inventory if GWRC could assist with data conversion, acquisition and enhancement.

Attachment 1.B.2: Virginia Assessment Scenario Tool (VAST) Training (7/17/13)

GWRC PD 16 Workshop
Germanna Community College
10000 Germanna Point Dr., Rm 112A

Agenda

9:00 am: Greetings by GWRC & GCC Host
9:05 – 9:10: GCC Continuing Education Training Credits Process
9:10 – 9: 30: Introductions
9:30 – 11:00: VAST training--develop a baseline and project-specific planning scenarios.
11:00 – 11:10: Break
11:10 – 12:15: Continue project-specific scenarios.
12: 15 – 1: 00: Lunch Break (Lobby)
1:00 – 2:00: Compare scenarios
2:00 - 3:20: BMP prioritization and analysis
3:20 – 3:30: Break
3:30 – 4:30: VAST agricultural BMPs--agricultural land uses and animals.

This training was funded, in part, by the Virginia Coastal Zone Management Program at the Virginia Department of Environmental Quality through Grant # NA11NOS4190122 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.

Sponsors:

York River & Small Coastal Basins Roundtable

Rappahannock River Basin Commission

George Washington Regional Commission

Virginia Coastal Zone Management Program

NOAA

Participant List

	Name	Attendance	Representing
	Local Government		
1	Kevin Utt	Yes	Site Development Mngr., Building & Development Services City of Fredericksburg
2	Paul Santay	Yes	Dept of Public Works, Stormwater Division Stafford County
3	Troy Tignor	Yes	Director, Code Compliance Spotsylvania Co
4	Richard Street	No	Stormwater Program Manager Spotsylvania County
5	Craig Pennington	Yes	Spotsylvania Co Stormwater Program
6	Rick Roberson	No	Spotsylvania Co
7	Alex Long, AICP	Yes	Chair, Planning Commission Town of Port Royal
8	David Nunnally	Yes	Sr. Environmental Planner Caroline County Planning & Community Development
Regional Agencies			
9	Eldon James	Yes	Coordinator, Rappahannock River Basin Commission
10	Charles Lively	Yes	District Manager, Tri-County/City SWCD
11	Sam Johnson	Yes	Northern Neck SWCD
12	Stuart Mackenzie	No	Northern Neck PDC
13	Jessica Lassiter	No	Rivanna River Basin Commission
14	Alyson Sappington	No	District Manager Thomas Jefferson Soil and Water Conservation District
15	Wood Hudson	Yes	Sr. Environmental Planner Thomas Jefferson PDC
16	Kevin F. Byrnes, AICP	Yes	Director of Regional Planning & Regional Demographer George Washington Regional Commission
State Agencies			
17	May Sligh	Yes	TMDL/Watershed Field Coordinator Piedmont Regional Office, VDEQ
18	Beth Polak	Yes	Coastal Planner Virginia Coastal Zone Program, VDEQ

About the Instructor: Devereux Environmental Consulting, Inc. (DEC) of Silver Spring, Maryland is a woman-owned consulting practice that predominately works on environmental issues affecting the Chesapeake Bay. At DEC, environmental scientist Olivia H. Devereux offers expertise in all sectors including agriculture, forestry, and urban stormwater. Ms. Devereux previously worked at the Chesapeake Bay Program under a grant to the University of Maryland (October 2007 – July 2009), and then served on the staff of the Interstate Commission on the Potomac River Basin (ICPRB) with a portfolio focused on Chesapeake Bay projects (July 2009 – February 2012). Ms. Devereux has worked frequently and directly with officials of all the jurisdictions in the Chesapeake Bay watershed.

Olivia H. Devereux (olivia@devereuxconsulting.com)

Devereux Environmental Consulting (DEC, Inc.) Website: http://www.501c3tuneup.com/dec.html
Ph. 301-325-7449

VAST User Manual

Source: http://vasttool.org/Documentation.aspx (Available on-line)

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Appendices - Updated November 26, 2012 (On-Line, see link above)

Attachment Reference: Download Hyperlink

- **Attachment 2.A.1: Regional VSMP Model Ordinance Template**
- **Attachment 2.A.2: Regional VSMP Finance and Staffing Calculator**
- **Attachment 2.B.1: Comparison of Stafford Co MS4 Program and VSMP Model Ordinance**
- **Attachment 2.B.2: Research paper on regional program financing options**
- **Attachment 2.B.3: Legal analysis of local environmental fee assessment authority**
- **Attachment 2.B.4: HB2190 More Stringent Ordinances Legal Analysis**
- **Attachment 2.B.5: Stormwater Ordinance Development Legal Issues (Presentation)**
- **Attachment 2.B.6: Caroline County Draft VSMP Ordinance**
- **Attachment 2.B.7: Caroline County Report on Impact of VSMP Ordinance on Comprehensive Plan and Other Sections of the County Code of Ordinances**
- **Attachment 2.B.8: Caroline County Development Application, Review & Approval: Standard Operating & Procedures Manual**

Hyperlinked Virginia DEQ Document Titles:
• **Transferred Virginia Stormwater Regulations (Effective 8-27-13)**
• **DEQ VSMP Ordinance Checklist (Effective 8-12-13)**
• **Stormwater Program Transfer Crosswalk (Effective July 1, 2013)**
• **Post Consolidation VA Code and VAC Sections (Effective 8-28-2013)**

ATTACHMENT 2.A.1

Attachment 2.A.1: Regional VSMP Model Ordinance Template

INTRODUCTION

The draft GWRC Regional Stormwater Management Model Ordinance Template **("Regional Template")** was developed using the Virginia Stormwater Management Model Ordinance, developed by the Virginia Department of Conservation and Recreation, as its basis while incorporating stormwater management and erosion and sediment control ordinance language provided by Stafford County, the Center for Watershed Protection, and the Conservation Concepts Team.

Each section of the **Regional Template** begins with the language presented in the Virginia Stormwater Management Model Ordinance and then provides language from Stafford County **(presented in green),** from the Center for Watershed Protection **(presented in blue)**, and from the Conservation Concepts Team **(presented in red)**. The intent of the **Regional Template** is to provide to local government staff stormwater management ordinance language that can be substituted and/or incorporated by each locality to address local conditions.

The goal of the **Regional Template** is to provide the local governments in PD 16 with a combined Erosion and Sediment Control and Stormwater Management Ordinance that will meet *(or exceed, at the local option)* the requirements to develop state-approved Virginia Stormwater Management Programs (VSMPs).

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(as corresponds to the VA Stormwater Model Ordinance)

DRAFT
GWRC REGIONAL STORMWATER MANAGEMENT
MODEL ORDINANCE TEMPLATE

Pursuant to Code § 10.1-603.3, this ordinance is adopted as part of an initiative to integrate the **[insert locality]** stormwater management requirements with the **[insert locality's]** erosion and sediment control **[local reference]**, flood insurance **[local reference if applicable]**, flood plain management **[local reference]**, and Chesapeake Bay Preservation Act **[local code reference if applicable]** requirements into a unified stormwater program. The unified stormwater program is intended to facilitate the submission and approval of plans, issuance of permits, payment of fees, and coordination of inspection and enforcement activities into a more convenient and efficient manner for both **[insert locality]** and those responsible for compliance with these programs. The Department will assist localities in identifying where the required stormwater management provisions may be integrated into existing ordinances.

Keep the above

Sec. 1-1. PURPOSE AND AUTHORITY. (Section 4VAC50-60-20, 4VAC-60-40)

The (**City/Town/County of**) **Council/Board of Supervisors** desires to protect the health, safety, welfare, and property of (**City/Town/County**) residents and businesses, and the quality of waters within the **City/Town/County**. The (**City/Town/County of**) **Council/Board of Supervisors** recognizes that development tends to degrade these waters through erosion and sedimentation, increased flooding, stream channel erosion, and the transport and deposition of waterborne pollutants. This degradation is due, in part, to increased stormwater runoff as property is developed. Hence, the (**City/Town/County of**) **Council/Board of Supervisors** has determined that it is in the public interest to establish requirements which regulate the discharge of stormwater runoff from developments by integrating hydrologic and water quality functions into all aspects of a development's design, landscape and infrastructure.

Keep the above

(a) The purpose of this Ordinance is to ensure the general health, safety, and welfare of the citizens of **[insert locality name]** and protect the quality and quantity of state waters from the potential harm of unmanaged stormwater, including protection from a land disturbing activity causing unreasonable degradation of properties, water quality, stream channels, and other natural resources, and to establish procedures whereby stormwater requirements related to water quality and quantity shall be administered and enforced.

Keep the above

(a) The purpose of this ordinance is to establish minimum stormwater management requirements which:

1. Reduce flood damage to property; minimize the impacts of increased stormwater runoff from new land development;
2. Maintain the hydraulic adequacy of existing and proposed culverts, bridges, dams, and other structures;
3. Prevent, to the greatest extent feasible, an increase in nonpoint source pollution;
4. Maintain the integrity of stream channels for their biological functions and drainage;
5. Maintain natural drainage patterns to the extent practicable in order to promote existing hydrologic processes;
6. Promote infiltration of stormwater to recharge groundwater resources;
7. Minimize the impact of development upon stream erosion;
8. Preserve and protect water supply facilities from increased flood discharges, stream erosion, and nonpoint source pollution; and
9. Establish provisions for long-term responsibility for and maintenance of stormwater management control devices and techniques to manage the quality and quantity of stormwater runoff.

(b) This ordinance is adopted pursuant to Article 1.1 (§ 10.1-603.2 et seq.) of Chapter 6 of Title 10.1 of the Code of Virginia.

(b) This article supplements and is to be applied in conjunction with (**City/Town/County of**) building code, subdivision, and zoning ordinances as they apply to the development or subdivision of land within the (**City/Town/County**).

(c) This article is authorized by the Code of Virginia, Title 10.1, Chapter 5, Article 4 (§ 10.1-560 et seq.), known as the Virginia Erosion and Sediment Control Law; and Title 10.1 Chapter 6, Article 1.1 (§10.1-603.2 et seq.), known as the Virginia Stormwater Management Act.

(d) Pursuant to the Code of Virginia § 10.1-562, the **City/Town/County** is designated as Virginia Erosion and Sediment Control Program (VESCP) Authority to administer, conduct and enforce a Virginia Erosion and Sediment Control Program.

(e) Pursuant to the Code of Virginia § 10.1-603.3, the **City/Town/County** is designated as a Virginia Stormwater Management Program (VSMP) authority to operate a Virginia Stormwater Management Program.

Reference: 4VAC50-60-20: Purposes; 4VAC50-60-40: Authority; 4VAC50-30-30: Scope and applicability

Keep the above

Sec. 1-2. DEFINITIONS. (4VAC50-60-10)

In addition to the definitions set forth in 4VAC50-60-10 of the Virginia Stormwater Management Program Permit (VSMP) Regulations, 4VAC50-30-10 of the Virginia Erosion and Sediment Control (VESC) Regulations, and 4VAC50-50-10 of the Virginia Erosion and Sediment Control and Stormwater Management Certification (VSMC) Regulations which are expressly adopted and incorporated herein by reference, the following words and terms used in this chapter have the following meanings unless the context clearly indicates otherwise.

Keep the above

"*Administrator*" means the VSMP authority including the **[Locality]** staff person or department responsible for administering the VSMP on behalf of the locality.

"Adequate channel" means a natural or manmade channel which is capable of conveying runoff from a ten-year storm without overtopping its banks and from a two-year storm without eroding. A pipe or storm sewer system is adequate if runoff from a ten-year storm is contained within the system.

"Agreement in lieu of plan" means a contract between the plan-approving authority and the owner that specifies conservation measures that must be implemented in the construction of a single-family residence. This contract may be executed by the plan-approving authority in lieu of a formal site plan for the residence.

"*Applicant*" means any person submitting an application for a permit or requesting issuance of a permit under this Ordinance.

"As-built plan" means a set of engineering or site drawings that adequately depict stormwater management facilities and stormwater drainage systems as they were actually constructed.

"Best management practice" (BMP) means a structural or nonstructural practice, which is designed to minimize the impacts of development on surface or groundwater systems.

"Best management practice" or "BMP" means schedules of activities, prohibitions of practices, including both structural and nonstructural practices, maintenance procedures, and other management practices to prevent or reduce the pollution of surface waters and groundwater systems from the impacts of land-disturbing activities.

"Best management practice implementation plan" or "BMP Implementation Plan" is a site specific design plan for the implementation of BMPs on an individual single family lot or other parcel with less than one acre of land disturbance within a larger common plan of development. The BMP Implementation Plan provides detailed information on the implementation of the SWM pollutant load and volume reduction BMPs and other requirements for the individual lot or parcel as detailed in the SWPPP and SWM plans of the VSMP Permit for the larger common plan of development.

Keep the above

"Board" means the Virginia Soil and Water Conservation Board, or upon transfer of the Virginia Stormwater Management Program to DEQ, the Virginia State Water Control Board.

"Certificate of Competence" means an individual who holds a certificate of competence from the board or is enrolled in the board's training program and successfully completes such program within one year after enrollment for:

i) project inspection for ESC
ii) project inspection for SWM
iii) plan review for ESC, or is licensed as a professional engineer, architect, certified landscape architect or land surveyor pursuant to Article 1 (§ 54.1-400 et seq.) of Chapter 4 of Title 54.1 of the Code of Virginia.
iv) plan review for SWM
v) program administration for ESC
vi) Program administration for SWM
vii) Responsible land disturber, or is licensed as a professional engineer, architect, certified landscape architect or land surveyor pursuant to Article 1 (§ 54.1-400 et seq.) of Chapter 4 of Title 54.1 of the Code of Virginia.

"Channel" means a natural or manmade waterway.

"Channel" means a natural stream or artificial watercourse with a definite bed and banks that conducts continuously or periodically flowing water.

Keep the above

"*Chesapeake Bay Preservation Act land-disturbing activity*" means a land-disturbing activity including clearing, grading, or excavation that results in a land disturbance equal or greater than 2,500 square feet and less than one acre in all areas of jurisdictions designated as subject to the regulations adopted pursuant to the Chesapeake Bay Preservation Act, *Code of Virginia*, § 10.1-2100, et seq. *Required for localities within Tidewater Virginia.*

"Clearing" means any activity which removes the vegetative ground cover including, but not limited to, root mat removal, or topsoil stripping.

"*Common plan of development or sale*" means a contiguous area where separate and distinct construction activities may be taking place at different times on difference schedules.

"Common plan of development" means the contiguous area of a proposed residential,

commercial, or industrial subdivision where the timing of the development of any one or multiple lots or parcels may result in separate and distinct construction activities taking place at different times on different schedules.

Keep the above

"Conservation plan, erosion and sediment control plan" or *plan* means a document containing material and information or drawings for the conservation of soil and water resources of a unit or group of units of land. It shall include appropriate maps, an appropriate soil and water plan, with timing of proposed sediment-control measures, inventory and management information, with needed interpretations, and a record of decisions contributing to conservation treatment. The plan shall conform to the standards and specifications, stormwater management methods, calculations and criteria set forth in the Virginia Erosion and Sediment Control Handbook, the Virginia Erosion and Sediment Control Regulations, and this chapter.

"Conservation standards" or *standards* means standards adopted by the county pursuant to this chapter.

"Construction phasing" or "staging of construction," as the term is used in this chapter, means a construction process to control erosion and sedimentation where only a specified portion of an entire construction site is disturbed at any one time for the construction of the required infrastructure within that portion, and no subsequent portion of the construction site is allowed to be disturbed until the previous portion of land has been stabilized. Construction phasing is not to be confused with the terms "phasing of development" or "construction sequencing."

"Control measure" means any best management practice or stormwater facility, or other method used to minimize the discharge of pollutants to state waters.

"Clean Water Act" or "CWA" means the federal Clean Water Act (33 U.S.C §1251 et seq.), formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972, Public Law 92-500, as amended by Public Law 95-217, Public Law 95-576, Public Law 96-483, and Public Law 97-117, or any subsequent revisions thereto.

"Department" means the Department of Conservation and Recreation.

"Department" means the Department of Conservation and Recreation (DCR) or upon the transfer of the Virginia Stormwater Management Program to DEQ, the Department of Environmental Quality.

Keep the above

"Development" means land disturbance and the resulting landform associated with the construction of residential, commercial, industrial, institutional, recreation, transportation or utility facilities or structures or the clearing of land for non-agricultural or non-silvicultural purposes.

"Director" means the VSMP Authority (program administrator, public works director, etc.) or assigned designee.

"Drainage area" means a land area, water area, or both from which runoff flows to a common point.

"Erosion and Sediment Control Plan" or "plan", means a document containing material for the conservation of soil and water resources of a unit or group of units of land. It may include appropriate maps, an appropriate soil and water plan inventory and management information with needed interpretations, and a record of decisions contributing to conservation treatment. The plan shall contain all major conservation decisions and all information deemed necessary by the plan-approving authority to assure that the entire unit or units of land will be so treated to achieve the conservation objectives.

"Erosion control handbook" means the locally adopted erosion and sediment control handbook with such amendments, modifications and supplements as may, from time to time, be properly adopted.

"Erosion impact area" means an area of land not associated with current land-disturbing activity but subject to persistent soil erosion resulting in the delivery of sediment onto neighboring properties or into state waters. This definition shall not apply to any lot or parcel of land of ten thousand (10,000) square feet or less used for residential purposes or to shorelines where the erosion results from wave action or other coastal processes.

"Excavating" means any digging, scooping or other methods of removing earth materials.

"Filling" means any depositing or stockpiling of earth materials.

"Flocculents" (also known as polymers or polyacrylamide (PAM)) means natural materials or a class of chemicals that cause colloidal (clay) particles to coagulate and settle out in detained stormwater runoff.

"Flood fringe" means the portion of the floodplain outside the floodway that is usually covered with water from the 100-year flood or storm event. This includes, but is not limited to, the flood or floodway fringe designated by the Federal Emergency Management Agency.

"Flooding" means a volume of water that is too great to be confined within the banks or walls of the stream, water body or conveyance system and that overflows onto adjacent lands, thereby causing or threatening damage.

"Floodplain" means the area adjacent to a channel, river, stream, or other water body that is susceptible to being inundated by water normally associated with the 100-year flood or storm event. This includes, but is not limited to, the floodplain designated by the Federal Emergency Management Agency.

"Flood-prone area" means the component of a natural or restored stormwater conveyance system that is outside the main channel. Flood-prone areas may include, but are not limited to, the floodplain, the floodway, the flood fringe, wetlands, riparian buffers, or other areas adjacent to the main channel.

"Floodway" means the channel of a river or other watercourse and the adjacent land areas, usually associated with flowing water, that must be reserved in order to discharge the 100-year flood or storm event without cumulatively increasing the water surface elevation more than one foot. This includes, but is not limited to, the floodway designated by the Federal Emergency Management Agency.

"General permit" means the state permit titled GENERAL PERMIT FOR DISCHARGES OF STORMWATER FROM CONSTRUCTION ACTIVITIES found in Part XIV (4VAC50-60-1100 et seq.) of the Regulations authorizing a category of discharges under the CWA and the Act within a geographical area of the Commonwealth of Virginia.

"Hydrologic Unit Code" or "HUC" means a watershed unit established in the most recent version of Virginia's 6th Order National Watershed Boundary Dataset.

"Immediate" or "immediately" means as soon as practicable, but no later than that end of the next work day, following the day when the earth-disturbing activities have temporarily or permanently ceased. In the context of this permit, "immediate" or "immediately" is used to define the deadline for initiating stabilization measures.

"Impervious cover" means a surface composed of material that significantly impedes or prevents natural infiltration of water into soil.

"Inspection" means an on-site review of the project's compliance with the VSMP Authority Land Disturbing Permit or VSMP Authority permit, and any applicable design criteria, or an on-site review to obtain information or conduct surveys or investigations necessary in the implementation or enforcement of this ordinance.

"Integrated management practice" means low-impact development microscale and distributed management techniques used to maintain predevelopment site hydrology. Integrated management practices shall include bioretention facilities, dry wells, filter/buffer strips, grassed swales, rain barrels, cisterns, infiltration trenches and amended soils as specified in the low-impact development design manuals

"Land disturbance" or *"land-disturbing activity"* means a man-made change to the land surface that potentially changes its runoff characteristics including clearing, grading, or excavation except that the term shall not include those exemptions specified in Section 1-3 (c) of this Ordinance.

"Land-disturbing activity" means any land change which may result in soil erosion from water or wind and the movement of sediments into state waters or onto lands in the commonwealth, including, but not limited to, clearing, grading, excavating, transporting and filling of land, except that the term shall not include:

(1) Minor land-disturbing activities such as home gardens and individual home landscaping, repairs and maintenance work;

(2) Individual service connections;

(3) Installation, maintenance or repair of any underground public utility lines, when such activity occurs on an existing hard-surfaced road, street or sidewalk, provided the land-disturbing activity is confined to the area of the road, street or sidewalk which is hard-surfaced; electric, natural gas and telephone utility companies, interstate and intrastate natural gas pipeline companies and railroad companies shall file general erosion and sediment control specifications annually with the board for review and written comments. The specifications shall apply to:

a. Construction, installation or maintenance of electric transmission, natural gas and telephone utility lines, and pipelines; and

b. Construction of the tracks, rights-of-way, bridges, communication facilities and other related structures and facilities of the railroad company.

The board shall have sixty (60) days in which to approve the specifications. If no action is taken by the board within sixty (60) days, the specifications shall be deemed approved. Individual approval of separate projects within subdivisions a. and b. of this subsection is not necessary when approved specifications are followed. Projects not included in subdivisions a. and b. of this subsection shall comply with the requirements of the appropriate local erosion and sediment control program. The board shall have the authority to enforce approved specifications;

(4) Septic tank lines or drainage fields, unless included in an overall plan for land-disturbing activity relating to construction of the building to be served by the septic tank system;

(5) Surface or deep mining;

(6) Exploration or drilling for oil and gas, including the well site, roads, feeder lines and off-site disposal areas;

(7) Tilling, planting or harvesting or agricultural, horticultural or forest crops or livestock feedlot operations, including engineering operations as follows: construction of terraces, terrace outlets, check dams, de-silting basins, dikes, ponds, ditches, strip cropping, lister furrowing, contour cultivating, contour furrowing, land drainage and land irrigation; however, this exception shall not apply to harvesting of forest crops unless the area on which harvesting occurs is reforested artificially or naturally in accordance with the provisions of chapter 11 (section 10.1-1100) et seq., Code of Virginia (1950), as amended, or is converted to bona fide agricultural or improved pasture use as described in subsection B of ß 10.1-1163, Code of Virginia (1950), as amended;

(8) Repairing or rebuilding of the tracks, right-of-way, bridges, communication facilities and other related structures and facilities of a railroad company;

(9) Agricultural engineering operations including, but not limited to, the construction of terraces, terrace outlets, check dams, de-silting basins, dikes, ponds not required to comply with the Dam Safety Act, article 2 (section 10.1-604 et seq.) of chapter 6 of title 10.1 of the Code of Virginia (1950), as amended, ditches, strip cropping, lister furrowing, contour cultivating, contour furrowing, land drainage and land irrigation;

(10) Disturbed land areas of less than two thousand five hundred (2,500) square feet in size, providing land-disturbing activity is not for the development of a residential lot(s) in a subdivision or no special site conditions or site development plans warrant conservation treatment and no erosion is evident during development;

(11) Installation of fence and sign posts or telephone and electric poles and other kinds of posts or poles;

(12) Shore erosion control projects on tidal waters when the projects are approved by local wetlands boards, the marine resources commission or the U.S. Army Corps of Engineers; however, any associated land that is disturbed outside of this exempted area shall remain subject to this chapter;

(13) Emergency work to protect life, limb or property and emergency repairs; provided that the land-disturbing activity would have required an approved erosion and sediment control plan, if the activity were not an emergency, then the land area disturbed shall be shaped and stabilized in accordance with the requirements of the plan-approving authority.

"Land disturbance" or "Land-disturbing activity" means any man-made change to the land surface that potentially changes its runoff characteristics, including, but not limited to clearing, grading, or excavation, except that the term shall not include those exemptions specified in § 10.1-603.8 and § 10.1-560 Code of Virginia and in this ordinance.

Keep the above

"*Layout*" means a conceptual drawing sufficient to provide for the specified stormwater management facilities required at the time of approval.

"*Local erosion and sediment control program* "or *local control program* means an outline of the various methods employed by Stafford County to regulate land-disturbing activities and thereby minimize erosion and sedimentation in compliance with the state program and may include such items as local ordinance.

"Localized flooding" means smaller scale flooding that may occur outside of a stormwater conveyance system. This may include high water, ponding, or standing water from stormwater runoff, which is likely to cause property damage or unsafe conditions.

"*Low-impact development*" means a hydrologically functional site design with pollution-prevention measures to reduce impacts and compensate for development impacts on hydrology and water quality.

"*Low-impact development design manuals*" refers to the Low-Impact Development Design Strategies: An Integrated Design Approach Manual and the Low-Impact Development Hydrologic Analysis Manual as incorporated by reference in this chapter.

"Main channel" means the portion of the stormwater conveyance system that contains the base flow and small frequent storm events.

"*Maintenance agreement*" means a legally binding agreement between the landowner of a stormwater management structure and Stafford County outlining each party's responsibility towards the operation, maintenance and general upkeep of said structure.

"*Maintenance plan*" means a component of the stormwater management design plan describing the stormwater management structures at the land development project and identifying maintenance items that will be performed by the landowner to ensure proper functioning of said structures.

"Major modification" means, for the purposes of this chapter, the modification or amendment of an existing state permit before its expiration that is not a minor modification as defined in this regulation.

"Manmade" means constructed by man.

"*Minor modification*" means an amendment to an existing general permit before its expiration not requiring extensive review and evaluation including, but not limited to, changes in EPA promulgated test protocols, increasing monitoring frequency requirements, changes in

sampling locations, and changes to compliance dates within the overall compliance schedules. A minor general permit modification or amendment does not substantially alter general permit conditions, substantially increase or decrease the amount of surface water impacts, increase the size of the operation, or reduce the capacity of the facility to protect human health or the environment.

"Natural channel design concepts" means the utilization of engineering analysis based on fluvial geomorphic processes to create, rehabilitate, restore, or stabilize an open conveyance system for the purpose of creating or recreating a stream that conveys its bankfull storm event within its banks and allows larger flows to access its floodplain.

"Natural stream" means a tidal or non-tidal watercourse that is part of the natural topography. It usually maintains a continuous or seasonal flow during the year and is characterized as being irregular in cross-section with a meandering course. Constructed channels such as drainage ditches or swales shall not be considered natural streams; however, channels designed utilizing natural channel design concepts may be considered natural streams.

"Non-point source pollution" means pollution consisting of constituents such as sediment, nutrients, and organic and toxic substances from diffuse sources, such as runoff from urban land development and use.

"Non-structural stormwater practice" means a stormwater runoff treatment technique which uses natural measures to reduce pollutant levels, does not require extensive construction efforts and/or promotes pollution reduction by eliminating the pollutant source.

"Off-site stormwater management facility" means a stormwater management facility located outside the subject property boundary described in the stormwater management design plan for the land development activity.

"On-site stormwater management facility" means a stormwater management facility located within the subject property boundary described in the stormwater management design plan for the land development activity.

"Operator" means the owner or operator of any facility or activity subject to regulation under this Ordinance.

"Outfall" means the location in a flow-path where stormwater leaves the site or enters the receiving stream.

"Overcompensation" means the extra water quantity or quality control provided at one site discharge point in order to allow another discharge point(s) to go uncontrolled.

"Peak flow rate" means the maximum instantaneous flow from a prescribed design storm at a particular location.

"Permit" or *"VSMP Authority Permit"* means an approval to conduct a land-disturbing activity issued by the Administrator for the initiation of a land-disturbing activity, in accordance with this Ordinance, and which may only be issued after evidence of general permit coverage has been provided by the Department.

"Permittee" means the person to whom the VSMP Authority Permit is issued.

"Person" means any individual, corporation, partnership, association, state, municipality, commission, or political subdivision of a state, governmental body, including federal, state, or local entity as applicable, any interstate body or any other legal entity.

"Post-development" refers to the conditions that reasonably may be expected or anticipated to exist after completion of the land development activity on a specific site or tract of land.

"Pre-development" refers to the land condition that exists at the time that plans for the land development are submitted to the locality. Where phased development or plan approval occurs (preliminary grading, roads, and utilities, etc.), the existing land use at the time the first item is submitted shall establish predevelopment conditions.

"Pre-treatment" means the techniques employed in a stormwater management plan to provide storage or filtering to help trap course materials before they enter the stormwater BMP. Pre-treatment is required on some BMPs to help avoid costly maintenance.

"Prior-developed lands" means land that has been previously utilized for residential, commercial, industrial, institutional, recreation, transportation or utility facilities or structures, and that will have the impervious areas associated with those uses altered during a land-disturbing activity.

"Program administrator" means the **(County Administrator-City/Town Manager)** or his designee.

"Redevelopment" means the process of developing land that is or has been previously developed.

"Regional stormwater management facility" (regional facility) means a facility or series of facilities designed to control stormwater runoff from a specific watershed and for one or more developments.

"Qualified personnel" means a person knowledgeable in the principles and practices of erosion and sediment and stormwater management controls who possesses the skills to assess conditions at the construction site for the operator that could impact stormwater quality and quantity and to assess the effectiveness of any sediment and erosion control measures or stormwater management facilities selected to control the quality and quantity of stormwater discharges from the construction activity.

"*Regulations*" means the Virginia Stormwater Management Program (VSMP) Permit Regulations, 4 VAC 50-60, as amended.

"Renewal fee" means the annual fee charged for a grading permit after the initial grading permit is obtained.

"Responsible land disturber" means an individual from the project or development team who will be in charge of and responsible for carrying out a land-disturbing activity covered by an approved plan or agreement in lieu of a plan, who (i) holds a responsible land disturber certificate of competence, (ii) holds a current certificate of competence from the Virginia Soil and Water Conservation Board in the areas of combined administration, program administration, inspection, or plan review, (iii) holds a current contractor certificate of competence for erosion and sediment control, or (iv) is licensed in Virginia as a professional engineer, architect, certified landscape architect or land surveyor pursuant to article 1 (sec. 54.1-400 et seq.) of chapter 4 of title 54.1 [Code of Virginia 1950].

"Runoff" means that portion of precipitation that is discharged across the land surface or through conveyances to one or more waterways.

"Runoff characteristics" include maximum velocity, peak flow rate, volume, and flow duration.

"Runoff volume" means the volume of water that runs off the site from a prescribed design storm.

"Single-family residence" means a non-commercial dwelling that is occupied exclusively by one family.

"Site" means the land or water area where any facility or land-disturbing activity is physically located or conducted, including adjacent land used or preserved in connection with the facility or land-disturbing activity. Areas channelward of mean low water in tidal Virginia shall not be considered part of a site.

"Site hydrology" means the movement of water on, across, through and off the site as determined by parameters including, but not limited to, soil types, soil permeability, vegetative cover, seasonal water tables, slopes, land cover, and impervious cover.

"Stabilization" means the physical act of installing, applying or planting vegetative or structural soil cover to an area of land to a stabilized condition.

"Stabilized" means the condition of an area of land that can be expected to withstand normal exposure to atmospheric conditions without incurring erosion and or sediment damage to it or to any abutting or adjacent land or water feature.

"State" means the Commonwealth of Virginia.

"State Board" means the Virginia Soil and Water Conservation Board.

"State permit" means an approval to conduct a land-disturbing activity issued by the State Board in the form of a state stormwater individual permit or coverage issued under a state general permit or an approval issued by the State Board for stormwater discharges from an MS4. Under these state permits, the Commonwealth imposes and enforces requirements pursuant to the federal Clean Water Act and regulations, the Virginia Stormwater Management Act and the Regulations.

"State Water Control Law" means Chapter 3.1 (§62.1-44.2 et seq.) of Title 62.1 of the Code of Virginia.

"State waters" means all water, on the surface and under the ground, wholly or partially within or bordering the Commonwealth or within its jurisdiction, including wetlands.

"Stormwater" means precipitation that is discharged across the land surface or through conveyances to one or more waterways and that may include stormwater runoff, snow melt runoff, and surface runoff and drainage.

"Stormwater conveyance system" means a combination of drainage components that are used to convey stormwater discharge, either within or downstream of the land-disturbing activity. This includes:

1. "Manmade stormwater conveyance system" means a pipe, ditch, vegetated swale, or other stormwater conveyance system constructed by man except for restored stormwater conveyance systems;
2. "Natural stormwater conveyance system" means the main channel of a natural stream and the flood-prone area adjacent to the main channel; or
3. "Restored stormwater conveyance system" means a stormwater conveyance system that has been designed and constructed using natural channel design concepts. Restored stormwater conveyance systems include the main channel and the flood-prone area adjacent to the main channel.

"Stormwater discharge associated with construction activity" means a discharge of stormwater runoff from areas where land-disturbing activities (e.g., clearing, grading, or excavation); construction materials or equipment storage or maintenance (e.g., fill piles, borrow area, concrete truck washout, fueling); or other industrial stormwater directly related to the construction process (e.g., concrete or asphalt batch plants) are located.

"Stormwater drainage" means the collection and conveyance of storm and other surface flows through the land development project in a manner to prevent flooding of structures and associated properties and erosion of channels. Stormwater drainage systems shall include stormwater conveyance channels, storm sewers and culverts.

"Stormwater management" means the collection, conveyance, storage, treatment, and disposal of stormwater runoff in a manner to prevent accelerated channel erosion, increased flood damage, and degradation of water quality.

"Stormwater management concept plan" means a generalized plan provided with the preliminary plan of subdivision describing how stormwater runoff through and from a land development project will be conveyed and controlled.

"Stormwater management extended detention basin" (extended detention basin) means a stormwater management facility that temporarily impounds runoff and discharges it through a hydraulic outlet structure over a specified period of time to a downstream conveyance system for the purpose of water quality enhancement or stream channel erosion control. Since an extended detention facility impounds runoff only temporarily, it is normally dry during non-rainfall periods.

"Stormwater management facility" means a device that controls stormwater runoff and changes the characteristics of that runoff including, but not limited to, the quantity and quality, the period of release, or the velocity of flow.

"Stormwater management filtering system" means a stormwater treatment practice that utilizes an artificial media [medium] to filter out pollutants. Filtering systems shall include bio-retention facilities and sand filters, as specified in the Virginia Stormwater Management Design Manuals.

"Stormwater management infiltration facility" means a stormwater management facility that temporarily impounds runoff and discharges it via infiltration through the surrounding soil. Infiltration facilities shall include infiltration basins, infiltration trenches, dry wells and porous pavement as specified in the stormwater management design manuals.

"Stormwater management open channel system" means a vegetated open channel designed to remove pollutants from stormwater runoff by filtration through grass and infiltration into the soil.

"Stormwater management plan" means a document(s) containing material for describing methods for complying with the requirements of this ordinance and the VSMP Permit regulations.

Keep the above

"Stormwater management plan" means a document(s) containing material describing methods for complying with the requirements of Section 1-6 of this Ordinance.

"Stormwater Pollution Prevention Plan" or "*SWPPP*" means a document that is prepared in accordance with good engineering practices and that identifies potential sources of pollutants that may reasonably be expected to affect the quality of stormwater discharges from the construction site, and otherwise meets the requirements of this Ordinance. In addition the document shall identify and require the implementation of control measures, and shall include, but not be limited to the inclusion of, or the incorporation by reference of, an approved erosion and sediment control plan, an approved stormwater management plan, and a pollution prevention plan.

"Stormwater Pollution Prevention Plan Template" or "SWPPP Template" means a document intended to be used for single family residential construction land disturbing activity that disturbs less than one acre of land and is part of a larger common plan of development to identify all applicable requirements of the SWPPP that was developed for the larger common plan of development.

"Stormwater management retention basin" (retention basin) means a stormwater management facility that temporarily impounds runoff and discharges it through a hydraulic outlet structure to a downstream conveyance system, and also includes a permanent impoundment. Therefore, it is normally wet, even during non-rainfall periods.

"Stormwater management wetland" means an area intentionally designed and created to emulate the water quality improvement function of wetlands for the primary purpose of removing pollutants from stormwater.

"Subdivision" means the same as defined in Section **[citation to local Ordinance]** of **[insert Locality name]** Subdivision Ordinance.

"Subdivision" means any division of a tract of land as set forth in section 22-4 of the Stafford County Code, provided, however, that if a new street is involved in a division into lots of ten (10) acres or more, all of the requirements of this chapter shall apply.

"Surface waters" means:

1. All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide;
2. All interstate waters, including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
    a. That are or could be used by interstate or foreign travelers for recreational or other purposes;
    b. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

c. That are used or could be used for industrial purposes by industries in interstate commerce.

4. All impoundments of waters otherwise defined as surface waters under this definition;

5. Tributaries of waters identified in subdivisions 1 through 4 of this definition;

6. The territorial sea; and

7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in subdivisions 1 through 6 of this definition.

"Total maximum daily load" or *"TMDL"* means the sum of the individual wasteload allocations for point sources, load allocations for nonpoint sources, natural background loading and a margin of safety. TMDLs can be expressed in terms of either mass per time, toxicity, or other appropriate measure. The TMDL process provides for point versus nonpoint source trade-offs.

"Transporting" means any moving of earth materials from one place to another place, other than such movement incidental to grading, when such movement results in the destruction of the vegetative ground cover either by tracking or the buildup of earth materials to the extent that erosion and sedimentation will occur.

"Virginia Stormwater Management Act" or *"Act"* means Article 1.1 (§10.1-603.2 et seq.) of Chapter 6 of Title 10.1 of the Code of Virginia.

"Virginia Stormwater BMP Clearinghouse website" means a website that contains detailed design standards and specifications for control measures that may be used in Virginia to comply with the requirements of the Virginia Stormwater Management Act and associated regulations.

"Virginia Stormwater Management Program" or "VSMP" means a program approved by the State Board after September 13, 2011, that has been established by a locality to manage the quality and quantity of runoff resulting from land-disturbing activities and shall include such items as local ordinances, rules, permit requirements, annual standards and specifications, policies and guidelines, technical materials, and requirements for plan review, inspection, enforcement, where authorized in this article, and evaluation consistent with the requirements of this article and associated regulations.

"Virginia Stormwater Management Program authority" or *"VSMP authority"* means an authority approved by the State Board after September 13, 2011, to operate a Virginia Stormwater Management Program.

"Virginia Stormwater Management Program authority" or "VSMP authority" means that the board has determined that the VSMP ordinance adopted by **(City/Town/County)** is consistent with the Virginia Stormwater Management Act (Article 1.1 (§ 10.1-603.2 et seq.) of Chapter 6 of Title 10.1 of the Code of Virginia) and the Virginia Stormwater Management

Program (VSMP) Permit Regulations (4VAC50-60) including the General Permit for Discharges of Stormwater from Construction Activities (Part XIV (4VAC50-60-1100 et seq.) and **(City/Town/County)** is thereby authorized by the board to operate a Virginia Stormwater Management Program.

Keep the above

"VSMP authority permit" means an approval to conduct a land-disturbing activity issued by **(City/Town/County)** as the permit-issuing VSMP authority for the initiation of a land-disturbing activity after evidence of coverage under the General Permit for Discharges of Stormwater from Construction Activities found in Part XIV (4VAC50-60-1100 et seq.) of the Virginia Stormwater Management Program Regulations has been provided

"VSMP Construction General Permit" or "Construction General Permit" means the General Permit for Discharges of Stormwater from Construction Activities found in Part XIV (4VAC50-60-1100 et seq.) of the Virginia Stormwater Management Program Regulations Section

"Wasteload allocation" or "wasteload" or "WLA" means the portion of a receiving surface water's loading or assimilative capacity allocated to one of its existing or future point sources of pollution. WLAs are a type of water quality-based effluent limitation.

"Watershed" means a defined land area drained by a river or stream, karst system, or system of connecting rivers or streams such that all surface water within the area flows through a single outlet. In karst areas, the karst feature to which the water drains may be considered the single outlet for the watershed.

"Wetlands" means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Sec. 1-3. - STORMWATER PERMIT REQUIREMENT; EXEMPTIONS.

(a) Except as provided herein, no person may engage in any land-disturbing activity until a VSMP authority permit has been issued by the Administrator in accordance with the provisions of this Ordinance.

(b) A Chesapeake Bay Preservation Act Land-Disturbing Activity shall be subject to an erosion and sediment control plan consistent with the requirements of the Erosion and Sediment Control Ordinance, a stormwater management plan as outlined under Section 1-

6, the technical criteria and administrative requirements for land-disturbing activities outlined in Section 1-9, and the requirements for control measures long-term maintenance outlined under Section 1-10. **[NOTE: Not required for localities located outside of Tidewater Virginia]**

(c) Notwithstanding any other provisions of this Ordinance, the following activities are exempt, unless otherwise required by federal law:

(1) Permitted surface or deep mining operations and projects, or oil and gas operations and projects conducted under the provisions of Title 45.1 of the Code of Virginia;

(2) Clearing of lands specifically for agricultural purposes and the management, tilling, planting, or harvesting of agricultural, horticultural, or forest crops, livestock feedlot operations, or as additionally set forth by the State Board in regulations, including engineering operations as follows: construction of terraces, terrace outlets, check dams, desilting basins, dikes, ponds, ditches, strip cropping, lister furrowing, contour cultivating, contour furrowing, land drainage, and land irrigation; however, this exception shall not apply to harvesting of forest crops unless the area on which harvesting occurs is reforested artificially or naturally in accordance with the provisions of Chapter 11 (§ 10.1-1100 et seq.) of Title 10.1 of the Code of Virginia or is converted to bona fide agricultural or improved pasture use as described in Subsection B of § 10.1-1163 of Article 9 of Chapter 11 of Title 10.1 of the Code of Virginia;

(3) Single-family residences separately built and disturbing less than one acre and not part of a larger common plan of development or sale, including additions or modifications to existing single-family detached residential structures **[NOTE: Localities within Tidewater Virginia are required to regulate single family residences where land disturbance exceeds 2,500 square feet," pursuant to Chapter ___ [cross-reference Chesapeake Bay Preservation Ordinance]]**;

(4) Land disturbing activities that disturb less than one acre of land area **[NOTE: Localities within Tidewater Virginia are required to regulate land disturbing activities equal to or exceeding an area of 2,500 square feet in all areas designated as subject to the Chesapeake Bay Preservation Area Designation and Management Regulations, pursuant to Chapter ___ [cross-reference Chesapeake Bay Preservation Ordinance]]**, or activities that are part of a larger common plan of development or sale that is one acre or greater of disturbance **[NOTE: The Locality may reduce this exception to a smaller area of disturbed land or qualify the conditions under which this exception shall apply]**;

(5) Discharges to a sanitary sewer or a combined sewer system;

(6) Activities under a State or federal reclamation program to return an abandoned property to an agricultural or open land use;

(7) Routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original construction of the project. The paving of an existing road with a compacted or impervious surface and reestablishment of existing associated ditches and shoulders shall be deemed routine maintenance if performed in accordance with this Subsection; and

(8) Conducting land-disturbing activities in response to a public emergency where the related work requires immediate authorization to avoid imminent endangerment to human health or the environment. In such situations, the Administrator shall be advised of the disturbance within seven days of commencing the land-disturbing activity and compliance with the administrative requirements of Subsection (a) is required within 30 days of commencing the land-disturbing activity.

Applicability. (sec21.5-1)

(1) Except as provided for in subsection (f)(2), all land development projects within Stafford County shall comply with the requirements of this chapter.

(2) The following activities shall be exempt from this chapter:

a. Permitted surface or deep mining operations and projects, or oil and gas operations and projects conducted under the provisions of title 45.1, Code of Virginia.

b. Tilling, planting, or harvesting of agricultural, horticultural, or forest crops.

c. Linear development projects, provided that (i) less than one acre of land will be disturbed per outfall or watershed, (ii) there will be insignificant increases in peak flow rates, and (iii) there are no existing or anticipated flooding or erosion problems downstream of the discharge points.

d. Single-family detached residences separately built and not part of a subdivision, including additions or modifications to existing single-family detached residential structures, provided that all applicable requirements of section 28-62 (Chesapeake Bay preservation area overlay districts) of the Code are met.

e. Structures considered ancillary to single-family detached and semidetached residences, duplexes, and townhouses, including, but not limited to, garages, decks, patios, and barns provided that all applicable requirements of section 28-62 (Chesapeake Bay preservation area overlay districts) of the Code are met.

f. Land development projects that disturb less than two thousand five hundred (2,500) square feet of land.

Exceptions (sec 21.5-7)

(a) Exceptions to the provisions of this chapter may be granted by the program administrator, upon receipt of request for such exception in writing from the applicant or property owner. The request shall include descriptions, drawings, calculations and other

information that is necessary to evaluate the waiver of stormwater management requirements.

(b) An exception may be granted provided that: (i) exceptions to the criteria are the minimum necessary to afford relief, (ii) economic hardship is not sufficient reason to grant an exception, (iii) reasonable and appropriate conditions shall be imposed as necessary upon an exception granted so the intent of the chapter is preserved.

(c) The minimum requirements for stormwater management may be waived in whole or part provided at least one of the following conditions applies:

(1) It can be demonstrated that the proposed development is not likely to impair attainment of the objectives of this chapter.

(2) The program administrator finds that meeting the minimum on-site requirements is not feasible due to the natural or existing physical characteristics of the site.

(3) The location of the land development project in the watershed is such that on-site stormwater management will result in increased flows on the main stream. The applicant or property owner must provide supporting hydrologic analysis in accordance with the stormwater management design manuals.

(4) The proposed land development project will not generate an increase in the two-year and ten-year predevelopment peak discharge rates and the off-site receiving channel is adequate.

(5) An existing off-site stormwater management facility provides the required controls.

(6) An existing regional stormwater management facility provides the required controls, and the property owner agrees to a pro-rata share contribution in accordance with section 21.5-2

(7) A regional stormwater management facility has been identified for construction in the Stafford County Land Use Plan. The regional stormwater management facility will provide the required controls for the land development project, the property owner agrees to construct all necessary interim stormwater management controls deemed necessary by the program administrator, and the property owner agrees to a pro-rata share contribution in accordance with section 21.5-2

Submission and Approval Required; Exceptions (sec 11-31)

(a) No person shall engage in any land-disturbing activity until he has submitted to the plan-approving authority an erosion and sediment control and stormwater management plan for such land-disturbing activity and until such plan has been reviewed and approved by the plan-approving authority. It shall be the responsibility of the owner or lessee of the land or his duly authorized agent to prepare and submit such plan to the plan-approving authority.

(b) There shall be no issuance of approval or permits for any land-disturbing activity, such as subdivision plat approval or issuance of building permits, until the required erosion and sediment control plan has been approved pursuant to this article.

(c) This section shall not apply to any person whose land-disturbing activities involve lands which extend into the jurisdiction of another local erosion and sediment control program, provided such person has a plan approved by the state soil and water conservation board. Such person shall comply with the requirements of section 11-15

(d) This section shall not apply to any state agency that undertakes a project involving a land-disturbing activity.

A. Except as provided herein, no person may engage in any land-disturbing activity until a VSMP authority permit has been issued by the Administrator in accordance with the provisions of this Ordinance.

B. A Chesapeake Bay Preservation Act Land-Disturbing Activity greater than 2,500 ft^2 shall be subject to an erosion and sediment control plan consistent with the requirements of the Erosion and Sediment Control Ordinance, a stormwater management plan as outlined under Section 1-6, the technical criteria and administrative requirements for land-disturbing activities outlined in Section 1-9, and the requirements for control measures long-term maintenance outlined under Section 1-10.

C. Notwithstanding any other provisions of this chapter, the following activities are exempt from obtaining a **[local governing body]**Land Disturbing Permit:
   1. Land-disturbing activities of less than 10,000 square feet in size (unless within a Chesapeake Bay Preservation Area where the disturbing activity is less than 2,500 ft^2);
   2. Individual service connections;
   3. Installation, maintenance, or repair of any underground public utility lines when such activity occurs on an existing hard surfaced road, street or sidewalk provided the land-disturbing activity is confined to the area of the road, street or sidewalk that is hard surfaced;
   4. Septic tank lines or drainage fields unless included in an overall plan for land-disturbing activity relating to construction of the building to be served by the septic tank system;
   5. Permitted surface or deep mining operations and projects, or oil and gas operations and projects conducted pursuant to Title 45.1, Code of Virginia;
   6. Tilling, planting, or harvesting of agricultural, horticultural, or forest crops, or livestock feedlot operations; or as additionally set forth by the board in § 10.1-560 Code of Virginia (this exception shall not apply to harvesting of forest crops unless the area on which harvesting occurs is reforested artificially or naturally in accordance with the provisions of Chapter 11, § 10.1-1100 et seq. Code of Virginia, or is converted to bona fide agricultural or improved pasture use as described in subsection B of § 10.1-1163 Code of Virginia).
   7. Repair or rebuilding of the tracks, right-of-way, bridges, communication facilities and other related structures and facilities of a railroad company;
   8. Agricultural engineering operations, including but not limited to the construction of terraces, terrace outlets, check dams, desilting basins, dikes, ponds not required to comply with the provisions of the Dam Safety Act, Article 2 (§ 10.1-604 et seq.) of

Chapter 6, ditches, strip cropping, lister furrowing, contour cultivating, contour furrowing, land drainage and land irrigation;

9. Installation of fence and sign posts or telephone and electric poles and other kinds of posts or poles; and
10. Emergency work to protect life, limb or property, and emergency repairs; however, if the land-disturbing activity would have required a Land Disturbing Permit if the activity were not an emergency, then the land area disturbed shall be shaped and stabilized in accordance with the corresponding requirements of this ordinance. In either situation, the VSMP Authority shall be advised of the disturbance within seven days of commencing the land-disturbing activity, and compliance with the administrative requirements of this ordinance is required within 30 days of commencing the land-disturbing activity.

D. VSMP Authority Permit

1. Except as exempted in item 3 of this section, all land disturbing activities that disturb one acre or greater must obtain a **[local governing body]**Land Disturbing Permit as required in Subsection B of this section, and must also obtain coverage under a VSMP Authority Permit;
2. Land disturbing activities that are part of a larger *common plan of development* must obtain a **[local governing body]**Land Disturbing Permit as required in Subsection B of this section, and shall meet one of the following:
   a. Obtain coverage under the existing VSMP Authority Permit issued by the VSMP Authority for the larger *common plan of development*; or
   b. Obtain coverage under a new (or separate) VSMP Authority Permit for the land disturbing activity.
3. Notwithstanding any other provisions of this chapter, the following activities are exempt from obtaining a VSMP Authority Permit unless otherwise required by federal law:
   a. Permitted surface or deep mining operations and projects, or oil and gas operations and projects conducted under the provisions of Title 45.1, Code of Virginia;
   b. Clearing of lands specifically for agricultural purposes and the management, tilling, planting, or harvesting of agricultural, horticultural, or forest crops, livestock feedlot operations, or as additionally set forth by the board in regulations, including engineering operations as follows: construction of terraces, terrace outlets, check dams, de-silting basins, dikes, ponds, ditches, strip cropping, lister furrowing, contour cultivating, contour furrowing, land drainage, and land irrigation; however, this exception shall not apply to harvesting of forest crops unless the area on which harvesting occurs is reforested artificially or naturally in accordance with the provisions of Chapter 11 (§ 10.1-1100 et seq.) or is converted to bona fide agricultural or improved pasture use as described in subsection B of § 10.1-1163;

c. Single-family residences separately built and disturbing less than one acre and not part of a larger common plan of development or sale, including additions or modifications to existing single-family detached residential structures.

d. Land-disturbing activities that disturb less than one acre of land area except for activities that are part of a larger common plan of development or sale that is one acre or greater of disturbance;

e. Activities under a State or federal reclamation program to return an abandoned property to an agricultural or open land use;

f. Routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original construction of the project. The paving of an existing road with a compacted or impervious surface and reestablishment of existing associated ditches and shoulders shall be deemed routine maintenance if performed in accordance with this subsection; and

g. Conducting land-disturbing activities in response to a public emergency where the related work requires immediate authorization to avoid imminent endangerment to human health or the environment. The operator has coverage under the VSMP Authority Permit provided that:

(1). The operator advises the VSMP Authority of the construction activity within seven days of commencing land disturbing activities;

(2). VSMP Authority Permit coverage is applied for within 30 days of commencing land disturbing activities that includes provisions to the land area disturbed to be shaped and stabilized in accordance with the corresponding requirements of this ordinance; and

(3). Documentation is provided with the registration statement to substantiate the occurrence of a public emergency.

Reference: 4VAC50-60-1170 Section I.A.c

Sec. 1-4. - STORMWATER MANAGEMENT PROGRAM ESTABLISHED; SUBMISSION AND APPROVAL OF PLANS; PROHIBITIONS.

(a) Pursuant to § 10.1-603.3 of the Code of Virginia, **[Locality]** hereby establishes a Virginia stormwater management program for land-disturbing activities and adopts the applicable Regulations that specify standards and specifications for VSMPs promulgated by the State Board for the purposes set out in Section 1-1 of this Ordinance. The **[local governing body]** hereby designates _____ as the Administrator of the Virginia Stormwater Management Program (VSMP).

(b) No VSMP authority permit shall be issued by the Administrator, until the following items have been submitted to and approved by the Administrator as prescribed herein:

(1) A permit application that includes a general permit registration statement;

(2) An erosion and sediment control plan approved in accordance with the **[insert locality name]** Erosion and Sediment Control Ordinance **[citation to local ordinance]**; and

(3) A stormwater management plan that meets the requirements of Section 1-6 of this Ordinance.

(c) No VSMP authority permit shall be issued until evidence of general permit coverage is obtained.

(d) No VSMP authority permit shall be issued until the fees required to be paid pursuant to Section 1-15, are received, **[optional: and a reasonable performance bond required pursuant to Section 1-16 of this Ordinance has been submitted.]**

(e) No VSMP authority permit shall be issued unless and until the permit application and attendant materials and supporting documentation demonstrate that all land clearing, construction, disturbance, land development and drainage will be done according to the approved permit.

(f) No grading, building or other local permit shall be issued for a property unless a VSMP authority permit has been issued by the Administrator.

Sec. 21.5-19. - Prohibitions.

(a) It shall be unlawful to:

(1) Cause or allow illicit discharges into the county's stormwater system;

(2) Discharge materials other than stormwater into the stormwater system by spills, dumping, or disposal without a VPDES permit;

(3) Cause or allow industrial discharges into the stormwater system without a VPDES permit; or

(4) Violate any condition or provision of this article or any permit granted for stormwater discharges.

(b) Subject to the provisions of subsection (c) below, the following activities shall not be unlawful discharges:

(1) Discharges pursuant to a VPDES or NPDES permit;

(2) Discharges resulting from firefighting activities;

(3) Water line flushing;

(4) Landscape irrigation;

(5) Diverted stream flows or rising groundwater;

(6) Infiltration of uncontaminated groundwater;

(7) Pumping of uncontaminated groundwater;

(8) Discharges from potable water sources, foundation drains, irrigation water, springs, water from crawl spaces or footing drains;
(9) Air conditioning condensation;
(10) Lawn watering;
(11) Residential car washing;
(12) Public street washing;
(13) Swimming pool discharges.

(c) In the event that any of the activities listed in subsection (b) above are found to cause sewage, industrial wastes or other wastes to be discharged into the system, the director shall so notify the person performing such activities, and shall order that such activities be stopped or conducted in a manner to avoid the discharge or sewage, industrial wastes or other wastes into a storm sewer system. The failure to comply with any such order shall constitute a violation of the provisions of this article.

Sec. 11-13. - Building construction projects.

(a) In building construction projects, erosion and sediment control devices shall be installed before footings may be approved. Such devices shall be maintained in working order throughout construction.

(b) No building permit for construction shall be issued until all roads and subdivision streets accessing the proposed building site have been graded and covered with base stone.

(c) No building permit for construction shall be issued until the effect of a one-hundred-year storm on the proposed building has been calculated by a licensed professional engineer or land surveyor.

(d) No building permit for construction shall be issued for a proposed building with a proposed lowest floor less than 1 foot above the one-hundred-year flood elevation as determined in subsection (c).

(Ord. No. 082-09, § 31-8C, 5-18-82; Ord. No. 093-27, 6-15-93; Ord. No. 000-88, 10-17-00; Ord. No. O04-32, 6-15-04)

Sec. 11-14. - Grading permit for land-disturbing activities—Required; application.

(a) No person shall engage in any land-disturbing activity without first having obtained a grading permit.

(b) Application for a grading permit shall be made on forms supplied by the permit-issuing agency and shall be accompanied by two (2) sets of the plan approved by the plan-approving authority, together with written, notarized certification that the applicant will be responsible for faithful performance of all components of such plan and intends to comply fully with the provisions of this chapter. Such permit shall grant the right-of-entry onto the property for inspection and monitoring of compliance with the provisions of the Stafford County Code. The

granting of the permit vests with the county all authority to take corrective action as necessary to ensure compliance with the provisions of the Stafford County Code.
(Ord. No. 082-09, §§ 31-7, 31-7-8A, C, 5-18-82; Ord. No. 091-48(R), 9-17-91)

125 Permits Required and Exemptions

E. Except as provided in this section, no person shall conduct any land disturbing activities until the required permits have been obtained from the VSMP Authority.

F. VSMP Authority Land Disturbing Permit

1. Except as exempted in item 2 of this section, all land disturbing activities that disturb 10,000 ft^2 or greater must obtain a Land Disturbing Permit from the VSMP Authority
2. Notwithstanding any other provisions of this chapter, the following activities are exempt from obtaining a Land Disturbing Permit:
   a. Land-disturbing activities of less than 10,000 square feet in size
   b. Individual service connections;
   c. Installation, maintenance, or repair of any underground public utility lines when such activity occurs on an existing hard surfaced road, street or sidewalk provided the land-disturbing activity is confined to the area of the road, street or sidewalk that is hard surfaced;
   d. Septic tank lines or drainage fields unless included in an overall plan for land-disturbing activity relating to construction of the building to be served by the septic tank system;
   e. Permitted surface or deep mining operations and projects, or oil and gas operations and projects conducted pursuant to Title 45.1, Code of Virginia;
   f. Tilling, planting, or harvesting of agricultural, horticultural, or forest crops, or livestock feedlot operations; or as additionally set forth by the board in § 10.1-560 Code of Virginia (this exception shall not apply to harvesting of forest crops unless the area on which harvesting occurs is reforested artificially or naturally in accordance with the provisions of Chapter 11, § 10.1-1100 et seq. Code of Virginia, or is converted to bona fide agricultural or improved pasture use as described in subsection B of § 10.1-1163 Code of Virginia).
   g. Repair or rebuilding of the tracks, right-of-way, bridges, communication facilities and other related structures and facilities of a railroad company;
   h. Agricultural engineering operations, including but not limited to the construction of terraces, terrace outlets, check dams, desilting basins, dikes, ponds not required to comply with the provisions of the Dam Safety Act, Article 2 (§ 10.1-604 et seq.) of Chapter 6, ditches, strip cropping, lister furrowing, contour cultivating, contour furrowing, land drainage and land irrigation;
   i. Installation of fence and sign posts or telephone and electric poles and other kinds of posts or poles; and
   j. Emergency work to protect life, limb or property, and emergency repairs; however, if the land-disturbing activity would have required a Land Disturbing

Permit if the activity were not an emergency, then the land area disturbed shall be shaped and stabilized in accordance with the corresponding requirements of this ordinance. In either situation, the VSMP Authority shall be advised of the disturbance within seven days of commencing the land-disturbing activity, and compliance with the administrative requirements of this ordinance is required within 30 days of commencing the land-disturbing activity.

Reference: §10.1-563.A

G. VSMP Authority Permit

4. Except as exempted in item 3 of this section, all land disturbing activities that disturb one acre or greater must obtain a Land Disturbing Permit as required in Subsection B of this section, and must also obtain coverage under a VSMP Authority Permit;
5. Land disturbing activities that are part of a larger *common plan of development* must obtain a Land Disturbing Permit as required in Subsection B of this section, and shall meet one of the following:
   c. Obtain coverage under the existing VSMP Authority Permit issued by the VSMP Authority for the larger *common plan of development*; or
   d. Obtain coverage under a new (or separate) VSMP Authority Permit for the land disturbing activity.
6. Notwithstanding any other provisions of this chapter, the following activities are exempt from obtaining a VSMP Authority Permit unless otherwise required by federal law:
   h. Permitted surface or deep mining operations and projects, or oil and gas operations and projects conducted under the provisions of Title 45.1, Code of Virginia;
   i. Clearing of lands specifically for agricultural purposes and the management, tilling, planting, or harvesting of agricultural, horticultural, or forest crops, livestock feedlot operations, or as additionally set forth by the board in regulations, including engineering operations as follows: construction of terraces, terrace outlets, check dams, de-silting basins, dikes, ponds, ditches, strip cropping, lister furrowing, contour cultivating, contour furrowing, land drainage, and land irrigation; however, this exception shall not apply to harvesting of forest crops unless the area on which harvesting occurs is reforested artificially or naturally in accordance with the provisions of Chapter 11 (§ 10.1-1100 et seq.) or is converted to bona fide agricultural or improved pasture use as described in subsection B of § 10.1-1163;
   j. Single-family residences separately built and disturbing less than one acre and not part of a larger common plan of development or sale, including additions or modifications to existing single-family detached residential structures.

k. Land-disturbing activities that disturb less than one acre of land area except for activities that are part of a larger common plan of development or sale that is one acre or greater of disturbance;

l. Activities under a State or federal reclamation program to return an abandoned property to an agricultural or open land use;

m. Routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original construction of the project. The paving of an existing road with a compacted or impervious surface and reestablishment of existing associated ditches and shoulders shall be deemed routine maintenance if performed in accordance with this subsection; and

n. Conducting land-disturbing activities in response to a public emergency where the related work requires immediate authorization to avoid imminent endangerment to human health or the environment. The operator has coverage under the VSMP Authority Permit provided that:

(1). The operator advises the VSMP Authority of the construction activity within seven days of commencing land disturbing activities;

(2). VSMP Authority Permit coverage is applied for within 30 days of commencing land disturbing activities that includes provisions to the land area disturbed to be shaped and stabilized in accordance with the corresponding requirements of this ordinance; and

(3). Documentation is provided with the registration statement to substantiate the occurrence of a public emergency.

Reference: 4VAC50-60-1170 Section I.A.c

130 Permit Application

A. Prior to issuance of a VSMP Authority Land Disturbing Permit, the following items must be addressed:

1. (**City/Town/County**) Land Disturbing Permit Application must be submitted to the Director
2. A Stormwater Pollution Prevention Plan (SWPPP) must be submitted to and approved by the VSMP Authority in accordance with the provisions of this chapter **Section 150**;
3. The Performance Bond Requirements of this chapter must be met; and
4. The applicable fee in accordance with this chapter must be submitted to the VSMP Authority.
5. When the Land Disturbing Permit Application fee is part of the VSMP Permit application, the applicant may submit evidence of payment and VSMP Permit coverage.

B. Prior to issuance of a VSMP Authority Permit by the VSMP Authority, the following items must be addressed:

1. The requirements of Land Disturbing Permit Application of subsection A, to include all required elements of a SWPPP applicable to a VSMP Authority Permit Application as required by this ordinance; and
2. A VSMP Authority permit application / registration statement must be submitted to the VSMP Authority or corresponding evidence of VSMP Authority permit coverage through the Virginia e-permitting system.

(**Reference**: 10.1-603.8.A)

C. Prior to issuing coverage under an existing VSMP Authority Permit for a land disturbing activity within a common plan of development, the following items must be addressed:
   1. The requirements of Land Disturbing Permit Application of subsection A
   2. A BMP Implementation Plan consistent with the BMP performance goals of the common plan of development must be submitted.

D. Whenever a land disturbing activity is proposed to be conducted by a contractor performing construction work pursuant to a construction contract, the preparation and submission of plans, obtaining approval of the required plans, and obtaining all required permits shall be the responsibility of the owner of the land.

Reference: §10.1-603.8. Regulated activities, submission and approval of a permit application, security for performance, exemptions; 4VAC50-60-750. Due dates for Virginia Stormwater Management Program (VSMP) Permits

148 Grandfathering provisions

4VAC50-60-48 establishes provisions for projects that have a locally-approved 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 that includes a *layout* (defined as a conceptual drawing sufficient to locate and identify the specified stormwater management facilities required at the time of approval) and supporting documentation such that the resulting land disturbance will be considered compliant with Part II.C. of the stormwater regulations, to be grandfathered and remain subject to the provisions of Part II.C. (the technical criteria of the previous stormwater regulations). In order to be considered eligible for grandfathering, local officials should verify that the documentation includes

- a conceptual drawing that identifies the location of the proposed stormwater facilities;
- the pre and post development calculations that detail the required pollutant reduction necessary to comply with the Part II.C water quality design criteria; and
- calculations necessary to determine compliance with the Part II.C water quantity design criteria.

Land-disturbing activities that do not include these necessary items should not be considered grandfathered.

Based on this criterion, and since NSVRC localities do not have existing stormwater programs currently in place, it seems very unlikely that a concept plan that meets the criteria above would have been submitted. Therefore, it is equally unlikely that the grandfathering provisions would be applicable.

Reference: 4VAC50-60-48 and Guidance Document On The Implementation Of The Virginia Stormwater Management Regulations Grandfathering Provision (May 15, 2012).

(a) Pursuant to § 10.1-603.3 of the Code of Virginia, **[Locality]** hereby establishes a Virginia stormwater management program for land-disturbing activities and adopts the applicable Regulations that specify standards and specifications for VSMPs promulgated by the State Board for the purposes set out in Section 1-1 of this Ordinance. The **[local governing body]** hereby designates _____ as the Administrator of the Virginia Stormwater Management Program (VSMP).

(b) No VSMP authority permit shall be issued by the Administrator, until the following items have been submitted to and approved by the Administrator as prescribed herein:

(1) A permit application that includes a general permit registration statement;

(2) An erosion and sediment control plan approved in accordance with the **[insert locality name]** Erosion and Sediment Control Ordinance **[citation to local ordinance]**; and

(3) A stormwater management plan that meets the requirements of Section 1-6 of this Ordinance.

(c) No VSMP authority permit shall be issued until evidence of general permit coverage is obtained.

(d) No VSMP authority permit shall be issued until the fees required to be paid pursuant to Section 1-15, are received, and the performance bond required pursuant to Section 1-16 of this Ordinance has been submitted.

(e) No VSMP authority permit shall be issued unless and until the permit application and attendant materials and supporting documentation demonstrate that all land clearing, construction, disturbance, land development and drainage will be done according to the approved permit.

(f) No grading, building or other local permit shall be issued for a property unless a VSMP authority permit has been issued by the Administrator.

(g) It shall be unlawful to:

(1) Cause or allow illicit discharges into the county's stormwater system;

(2) Discharge materials other than stormwater into the stormwater system by spills, dumping, or disposal without a VPDES permit;

(3) Cause or allow industrial discharges into the stormwater system without a VPDES permit; or

(4) Violate any condition or provision of this article or any permit granted for stormwater discharges.

Sec. 1-5. - STORMWATER POLLUTION PREVENTION PLAN; CONTENTS OF PLANS.

(a) The Stormwater Pollution Prevention Plan (SWPPP) shall include the content specified by Section 4VAC50-60-54 and must also comply with the requirements and general information set forth in Section 4VAC50-60-1170, Section II [stormwater pollution prevention plan] of the general permit.

(b) The SWPPP shall be amended by the operator whenever there is a change in design, construction, operation, or maintenance that has a significant effect on the discharge of pollutants to state waters which is not addressed by the existing SWPPP.

(c) The SWPPP must be maintained by the operator at a central location onsite. If an onsite location is unavailable, notice of the SWPPP's location must be posted near the main entrance at the construction site. Operators shall make the SWPPP available for public

review in accordance with Section II of the general permit, either electronically or in hard copy.

150 Stormwater Pollution Prevention Plan Components and Applicability

A. Land disturbing Activities of 10,000 ft^2 or greater, and less than one acre, and not part of a larger common plan of development shall include:
   1. General SWPPP requirements as described in **Section 155;**
   2. An erosion and sediment control (ESC) plan as described in **Section 160**;

B. Land disturbing activities of 10,000 ft^2 or greater, and less than 1 acre, and part of a larger common plan of development shall include:
   1. General SWPPP requirements as described in **Section 155;**
   2. An ESC plan or if single family residential construction an agreement in lieu of an ESC plan as described in **Section 160**;
   3. *BMP Implementation Plan* demonstrating compliance with all applicable elements of the approved SWPPP developed for the larger common plan of development in order to maintain coverage under the previously issued VSMP Authority Permit;
   4. If the previously issued VSMP Authority permit coverage as described in item 3 of this subsection is unavailable, a BMP Implementation Plan and a SWPPP Template shall be required to obtain new VSMP Permit coverage.

C. Land disturbing activities of one acre or greater that are part of a larger common plan of development shall include:
   1. General SWPPP requirements as described in **Section 155;**
   2. An ESC plan as described in **Section 160**;
   3. *BMP Implementation Plan* demonstrating compliance with all applicable elements of the approved SWPPP developed for the larger common plan of development in order to maintain coverage under the previously issued VSMP Authority Permit;
   4. If the previously issued VSMP Authority permit coverage as described in item 3 of this subsection is unavailable, the following shall be required in order to obtain new VSMP Permit Coverage:
      a. *BMP Implementation Plan* demonstrating compliance with all applicable elements of the approved Storm Water Management (SWM) plan developed for the larger common plan of development;
      b. A Pollution Prevention (PP) plan as described in **Section 175**; and
      c. A Total Maximum Daily Load (TMDL) and Exceptional Waters (EW) Action Plan as described in **Section 180**;;

D. Land disturbing activities of one (1) acre or greater shall include:
   1. General SWPPP requirements described in **Section 155**;
   2. An ESC plan as described in **Section 160**;
   3. A SWM plan as described in **Section 165**;
   4. A PP plan as described in **Section 175**; and
   5. A TMDL and EW Action Plan as described in **Section 180**;

Reference: §10.1-603.8. Regulated activities; submission and approval of a permit application; security for performance; exemptions; 4VAC50-60-53. Applicability. 4VAC50-60-54. Stormwater pollution prevention plan requirements; 4VAC50-60-30. Applicability.

155 General Stormwater Pollution Prevention Plan (SWPPP) Requirements

A. In addition to the applicable components as provided in **Section 150**, a Stormwater Pollution Prevention Plan (SWPPP) shall include the following general requirements:

1. Contact information including the name, address, and telephone number of the owner and the tax reference number and parcel number of the property or properties affected;
1. A certification that the SWPPP meets all submittal requirements outlined in this ordinance and was prepared and appropriately sealed and signed by a professional registered in the Commonwealth of Virginia pursuant to Article 1 (§54.1-400 et seq.) of Chapter 4 of Title 54.1 of the Code of Virginia.
2. A certification that the person responsible for carrying out the plan will properly perform the conservation measures included in the plan and that he will conform to the provisions of Code of Virginia, § 10.1-560 et seq., (the Virginia Erosion and Sediment Control Law) and Virginia Administrative Code 4VAC50-30 (the Virginia Erosion and Sediment Control Regulations), and Code of Virginia, §10.1-603.2 et seq., known as the Virginia Stormwater Management Law and Virginia Administrative Code 4VAC50-60 (the Virginia Stormwater Management Regulations) of the board.
3. A certification that all applicable U.S. Army Corps of Engineers and state permits necessary for activities in state waters and wetlands or appropriate waivers of jurisdiction have been obtained.

B. Except as provided in item C of this section, prior to engaging in the land disturbing activities shown on the approved plan, the person responsible for carrying out the plan shall provide the name of an individual qualified (or certified) as a *Responsible Land Disturber* to the VSMP Authority who will be in charge of and responsible for carrying out the land disturbing activity. Failure to provide the name of an individual holding a certificate of competence prior to engaging in land disturbing activities may result in revocation of the approval of the plan and the person responsible for carrying out the plan shall be subject to the penalties provided in **Section 225**.

Reference: 10.1-563.B

C. The designation of a *Responsible Land Disturber* shall not be required for persons carrying out an agreement in lieu of a plan for construction of a single-family residence that results in less than one acre of land disturbance unless it has been determined that the proposed land disturbing activities are adjacent to and may potentially impact a sensitive resource area, including but not limited to streams, wetlands, and steep slopes. If a violation occurs during the land disturbing activity, then the person responsible for

carrying out the agreement in lieu of a plan shall correct the violation and provide the name of an individual qualified as a *Responsible Land Disturber*. Failure to provide the name of a *Responsible Land Disturber* shall be a violation of this section.

Reference: 10.1-566

D. The SWPPP must be maintained at a central location onsite. If an onsite location is unavailable, notice of the SWPPP's location must be posted near the main entrance at the construction site.

E. SWPPPs shall include the following Environmental Resources Inventory (ERI) information:

1. A site plan or map which conforms to any plan of development or subdivision plat and shall include the information required in this section.
2. A narrative that includes a description of current site conditions and final site conditions
3. Existing and proposed topography with a maximum 2 foot contour interval.
4. Evidence on the site plan that no more land than is necessary to provide for the proposed use or development shall be disturbed.
5. Evidence on the site plan that natural drainage ways have been preserved to the extent practicable.
6. An approved tree preservation and protection plan in accordance with VSMP Authority criteria.
7. The location of any wetlands, intermittent or perennial streams, or other waters to be temporarily protected with a vegetated buffer in accordance with the VSMP Construction General Permit or as required by this ordinance. (**Section 160** ESC).
8. All buffer areas to streams and wetlands as required in Item 7 and any wetlands or other features to be protected shall be located on the SWPPP and shall be conspicuously flagged or otherwise identified on the site and not disturbed unless authorized by law; the applicant shall notify VSMP Authority upon completion of flagging.
9. A comprehensive drainage plan indicating existing and proposed drainage patterns and identification of all stormwater points of discharge to downstream stormwater conveyance systems.
10. 100-year floodplains
11. Soils information as required by VSMP Authority;
12. Other geologic features that may potentially impact the control of erosion and stormwater, or the implementation of the approved plans including but not limited to:
    a. bedrock;
    b. high water table;
    c. steep slopes;
    d. karst formations

Sec. 1-6. - STORMWATER MANAGEMENT PLAN; CONTENTS OF PLAN.

(a) The Stormwater Management Plan, required in Section 1-4 of this Ordinance, must apply the stormwater management technical criteria set forth in Section 1-9 of this Ordinance to the entire land-disturbing activity, consider all sources of surface runoff and all sources of subsurface and groundwater flows converted to subsurface runoff, and include the following information:

(1) Information on the type and location of stormwater discharges; information on the features to which stormwater is being discharged including surface waters or karst features, if present, and the pre-development and post-development drainage areas;

(2) Contact information including the name, address, and telephone number of the owner and the tax reference number and parcel number of the property or properties affected;

(3) A narrative that includes a description of current site conditions and final site conditions **[Alternatively, the locality may allow the information that addresses the current and final site conditions to be provided and documented during the review process]**;

(4) A general description of the proposed stormwater management facilities and the mechanism through which the facilities will be operated and maintained after construction is complete;

(5) Information on the proposed stormwater management facilities, including:

(i) The type of facilities;
(ii) Location, including geographic coordinates;
(iii) Acres treated; and
(iv) The surface waters or karst features, if present, into which the facility will discharge.

(6) Hydrologic and hydraulic computations, including runoff characteristics;

(7) Documentation and calculations verifying compliance with the water quality and quantity requirements of **[Section 1-9 of this Ordinance or the referenced local manual]**.

(8) A map or maps of the site that depicts the topography of the site and includes:

(i) All contributing drainage areas;
(ii) Existing streams, ponds, culverts, ditches, wetlands, other water bodies, and floodplains;

(iii) Soil types, geologic formations if karst features are present in the area, forest cover, and other vegetative areas;
(iv) Current land use including existing structures, roads, and locations of known utilities and easements;
(v) Sufficient information on adjoining parcels to assess the impacts of stormwater from the site on these parcels;
(vi) The limits of clearing and grading, and the proposed drainage patterns on the site;
(vii) Proposed buildings, roads, parking areas, utilities, and stormwater management facilities; and
(viii) Proposed land use with tabulation of the percentage of surface area to be adapted to various uses, including but not limited to planned locations of utilities, roads, and easements.

(b) If an operator intends to meet the water quality and/or quantity requirements set forth in Section 1-9 of this Ordinance through the use of off-site compliance options, where applicable, then a letter of availability from the off-site provider must be included. Approved off-site options must achieve the necessary nutrient reductions prior to the commencement of the applicant's land-disturbing activity except as otherwise allowed by § 10.1-603.8:1 of the Code of Virginia.

(c) Elements of the stormwater management plans that include activities regulated under Chapter 4 (§54.1-400 et seq.) of Title 54.1 of the Code of Virginia shall be appropriately sealed and signed by a professional registered in the Commonwealth of Virginia pursuant to Article 1 (§ 54.1-400 et seq.) of Chapter 4 of Title 54.1 of the Code of Virginia.

(d) A construction record drawing for permanent stormwater management facilities shall be submitted to the Administrator. The construction record drawing shall be appropriately sealed and signed by a professional registered in the Commonwealth of Virginia, certifying that the stormwater management facilities have been constructed in accordance with the approved plan. **[NOTE: An Administrator may elect not to require construction record drawings for stormwater management facilities for which maintenance agreements are not required pursuant to Section 1-10 (b).]**

Sec. 21.5-2. - Stormwater management technical criteria.

(a) General.

(1) Site designs shall minimize the generation of stormwater and maximize pervious areas for stormwater treatment. Structural and nonstructural infiltration BMPs shall be encouraged to provide stormwater quality and quantity control and groundwater recharge.

(2) Natural channel characteristics shall be preserved to the maximum extent practicable.

(3) Residential, commercial or industrial developments shall apply these stormwater management criteria to land development as a whole. Individual residential lots in new subdivisions shall not be considered separate land development projects, but rather the

entire subdivision shall be considered a single land development project. Hydrologic parameters shall reflect the ultimate land development and shall be used in all engineering calculations.

(4) The design criteria, methodologies and construction specifications for all stormwater management facilities, and structural and nonstructural BMPs shall be those of the stormwater management design manuals. The design shall be certified by a professional licensed in Virginia to perform such work.

(5) Pre-development and post-development runoff rates shall be verified by calculations that are consistent with good engineering practices and methodologies found in the stormwater management design manuals.

(6) Outflows from a stormwater management facility shall be discharged to an adequate channel, and velocity dissipaters shall be placed at the outfall of all stormwater management facilities and along the length of any outfall channel as necessary to provide a non-erosive velocity of flow from the facility to a channel.

(7) Safety measures shall be incorporated into the design of all stormwater management facilities in accordance with the stormwater management design manuals.

(8) Stormwater management facilities shall be designed to minimize the propagation of insects, particularly mosquitoes, provided that design features proposed will not negatively impact the functions of the facility.

(9) Impounding structures that are not covered by the Virginia Impounding Structures Regulations (4VAC50-20-10, et seq.) shall be engineered for structural integrity during the 100-year storm event in accordance with the stormwater management design manuals.

(10) All stormwater management facilities shall have a maintenance plan and agreement, which identifies the owner and responsible party for carrying out the maintenance plan in accordance with section 21.5-5

(11) Storm drainage easements shall be required on lots or parcels where the conveyance, storage or treatment of stormwater is proposed or can reasonably be expected to occur. These drainage easements shall be located in accordance with the provisions of section 22-152 (Lots for stormwater management facilities) of the Code and shall be computed and identified on the plat of record prior to recordation in accordance with the stormwater management design manuals.

(12) Notwithstanding any other provisions of this chapter or waivers or exemptions thereto, land development projects shall comply with chapter 11 (Erosion and Sediment Control) and section 28-62 (Chesapeake Bay preservation area overlay districts) of the Code.

(13) Construction of stormwater management facilities or modifications to channels shall comply with all applicable laws and regulations. Evidence of all applicable federal and state permits required for construction of the facility shall be presented to the program administrator prior to issuance of a grading permit.

(14) If stormwater management facilities are provided through which water passes at times other than rainfall, the program administrator shall be consulted to ensure the appropriateness of design prior to submission of the stormwater management design plan. This applies to all on-stream or online stormwater management facilities.

(15) Construction of stormwater management impoundment structures within a Federal Emergency Management Agency (FEMA) designated floodplain shall be avoided to the extent possible. When this is unavoidable, all stormwater management facility construction shall be in compliance with all applicable requirements of the flood hazard overlay district as defined in chapter 28 (zoning ordinance) of this Code.

(b) *Water quality.*

(1) For land development, the post-developed stormwater runoff shall be treated by an appropriate technology-based water quality BMP(s) based on the imperviousness of the drainage area as specified in the stormwater management design manuals.

(2) The selected water quality BMP(s) shall be located, designed and maintained to perform at or higher than the target pollutant removal efficiency identified in the stormwater management design manuals.

(3) The following water quality BMPs shall be used to satisfy the applicable water quality control requirements in this subsection:

a. Stormwater management retention and extended detention basins;

b. Stormwater management wetlands;

c. Stormwater management infiltration facilities;

d. Stormwater management filtering systems;

e Stormwater management open channel systems;

f. Low-impact development site planning and integrated management practices in accordance with subsection (e); and

g. Regional stormwater management facilities in accordance with subsection (f).

(4) Innovative and alternative water quality BMPs may be allowed for land development at the discretion of the program administrator subject to pollutant removal efficiencies recognized by the Virginia Department of Conservation and Recreation.

(5) When a land development project contains or is divided by multiple drainage areas, water quality BMPs shall be evaluated for each drainage area. If a portion of the site is left uncontrolled or a portion of the site is treated with a lower than target pollutant removal efficiency BMP, the program administrator may require performance-based water quality calculations to verify total site water quality compliance in accordance with methodologies in the stormwater management design manuals. Overcompensation of water quality shall be in accordance with requirements outlined in the stormwater management design manuals.

(6) Water quality BMPs shall have an acceptable form of water quality pretreatment in accordance with pretreatment requirements found in the stormwater management design manuals.

(7) Stormwater discharges from stormwater hotspots shall use specific structural BMPs and pollution prevention practices. Stormwater from a hotspot shall not be infiltrated/released to stormwater management system without proper pretreatment.

(8) All redevelopment projects not served by an existing water quality BMP shall reduce post-development pollutant loads to ninety (90) percent of pre-development levels through the reduction of site impervious areas or the application of water quality BMPs in accordance with performance-based criteria in the stormwater management design manuals. For redevelopment of any property that is currently and adequately served by one or more water quality BMPs, the post-development pollution load shall not exceed the predevelopment pollution load.

(c) *Stream channel erosion.*

(1) Properties and receiving waterways downstream of any land development project shall be protected from erosion and damage due to increases in volume, velocity and frequency of peak flow rate of stormwater runoff in accordance with the minimum design standards set out in this subsection.

(2) The land development project shall provide twenty-four-hour extended detention of runoff generated by the one-year, twenty-four-hour-duration storm.

(3) The extended detention storage volume, release rate and orifice size shall be determined using the design methods in the stormwater management design manuals.

(4) Stream channel erosion impacts to receiving streams due to land development projects shall be addressed for each point of discharge from the development project.

(5) In lieu of extended detention of the one-year storm, land development may provide channel improvements, nonstructural practices, low impact development site design or other measures satisfactory to the program administrator to prevent channel erosion.

(d) *Flooding.*

(1) Downstream properties and waterways shall be protected from localized flooding due to increases in volume, velocity and peak flow rate of stormwater runoff in accordance with the minimum design standards set out in this subsection.

(2) The ten-year storm post-developed peak rate of runoff from the development site shall not exceed the ten-year pre-developed rate.

(3) The design storm shall be defined as either a twenty-four-hour storm using the rainfall distribution recommended by the U.S. Natural Resources Conservation Service (i.e., Soil Conservation Service) when using Soil Conservation Service methods or as the storm of critical duration that produces the greatest required storage volume at the site when using a design method such as the rational method.

Selection of appropriate hydrology method and corresponding calculations shall be in accordance with requirements of the stormwater management design manuals.

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

(5) Determination of flooding impacts to receiving streams due to land development projects shall be measured at each point of discharge from the development project and such determination shall include any runoff from the balance of the watershed, which also contributes to that point of discharge. Overcompensation of ten-year peak controls shall be in accordance with requirements of the stormwater management design manuals.

(6) Linear development projects shall not be required to control postdeveloped stormwater runoff for flooding, except in accordance with watershed or regional stormwater management plan.

(7). Dam break inundation zones shall be developed as required by Code of Virginia, §§ 10.1-606.2 and 10.1-606.3.

b. Any proposal to encroach the dam break inundation zone shall meet the requirements set forth in Code of Virginia §§ 10.1-606.2 and 10.1-606.3.

c. Establish a potential dam break inundation zone to provide guidance to design professionals and citizens.

(e) Low-impact development sites.

(1) The use of low-impact development site planning and integrated management practices shall be encouraged to control stormwater runoff at the source and more closely approximate predevelopment runoff conditions.

(2) Low-impact development stormwater management design plans developed consistent with the requirements of this subsection shall satisfy the water quality and quantity performance criteria of subsections (b), (c) and (d).

(3) The design criteria, hydrologic analysis and computational procedures for low-impact development stormwater management design plans shall be those of the low-impact development design manuals.

(4) Low-impact development stormwater management design plans shall not conflict with existing state or Stafford County laws, ordinances, regulations or policies.

(5) Storm drainage easements shall be recorded to identify the locations of integrated management practices on lots or parcels. The property owner shall not remove or structurally alter integrated management practices without prior written approval from the program administrator.

(6) Stormwater runoff from parking lots shall utilize stormwater management infiltration facilities and/or stormwater management filtering systems. These shall be placed within or near the parking lot islands.

(f) *Regional stormwater management facilities.*

(1) Land development projects shall implement regional stormwater management facilities identified in adopted stormwater management plans in accordance with requirements in the stormwater management design manuals and regulations adopted by the board of supervisors.

(2) When a land development project desires to install a regional stormwater management facility at a location not identified in an adopted stormwater management plan, the program administrator shall require submission of a comprehensive watershed study. The watershed study shall include sufficient information to evaluate impacts of the proposed facility on runoff rates, volumes and velocities, and environmental characteristics of the affected areas.

(3) Land development projects served by an existing or planned regional stormwater management facility shall pay a pro-rata share of the cost of implementing the facility in accordance with regulations adopted by the board of supervisors.

(Ord. 003-12, 3-18-03; Ord. No. O04-32, 6-15-04; Ord. No. O08-50, 9-2-08; Ord. No. O09-56, 10-20-09)

Sec. 21.5-3. - Stormwater drainage technical criteria.

(a) All land development projects shall provide for a system of adequate stormwater drainage. The system shall be based on sound engineering practices and shall be certified as adequate to provide for the necessary stormwater drainage by a professional licensed in Virginia to perform such work.

(b) Stormwater drainage systems shall be designed and constructed in accordance with the stormwater management design manuals. Design details for stormwater drainage systems shall be identified on the stormwater management design plan.

(c) Stormwater drainage systems shall be designed such that properties over which surface waters are conveyed, from the development site to discharge point(s), are not adversely affected. The increase in runoff volume caused by the development shall not aggravate an existing drainage problem or cause a drainage problem. A downstream drainage system may be created, expanded or improved in combination with or in lieu of on-site stormwater detention if approved by the program administrator.

(d) Stormwater drainage systems and stormwater management facilities shall be designed to honor natural drainage divides to the maximum extent practicable.

(e) Concentrated surface waters, including outflows from stormwater management facilities, shall not be discharged onto an adjoining developed property (such as any developed nonresidential property, a residential lot less than three (3) acres or the improved portion of a residential lot three (3) acres or greater), unless a storm drainage easement has been recorded on the affected property or unless the discharge is into a well defined natural stream (i.e., incised channel with bed and banks) or an existing drainage system of adequate capacity. Such drainage easement(s) shall be obtained prior to approval of the stormwater management design plan and

shall extend to the nearest recorded storm drainage easement, well-defined natural stream, or manmade stormwater facility, channel or pipe of adequate capacity.

(f) Stormwater drainage easements shall be extended where necessary to upstream property lines to permit future development reasonable access to on-site drainageways or drainage systems for connections.

(g) Surface runoff greater than three (3) cubic feet per second for the ten-year storm event that flows through lots shall be piped when average lot size is less than thirty thousand (30,000) square feet except that the program administrator may approve an open-channel system where the preservation of a natural drainageway is desirable or the use of an open channel will not interfere with the use of the property. This requirement shall not apply to low-impact development sites designed in accordance with the requirements of subsection (e) of section 21.5-2

(h) Residential lots in which lot size is less than thirty thousand (30,000) square feet shall be graded in such a manner that surface runoff does not cross more than three (3) lots before it is collected in a storm sewer system or designed stormwater conveyance channel.

(Ord. 003-12, 3-18-03)

Sec. 21.5-4. - Stormwater management plans.

A) Stormwater management concept plans:

(1) All preliminary plans of subdivision shall provide a stormwater management concept plan describing, in general, how stormwater runoff through and from the development will be conveyed and controlled.

(2) The stormwater management concept plan must be approved prior to submission of a stormwater management design plan (as part of the construction plan) for the entire development, or portions thereof. Commercial developments shall not require a stormwater management concept plan.

(3) A copy of the approved stormwater management concept plan shall be submitted with the stormwater management design plan, except for commercial developments. The program administrator shall check the design plan for consistency with the concept plan and may require a revised stormwater management concept plan if changes in the site development proposal have been made.

(4) The stormwater management concept plan shall provide all appropriate information as identified in the stormwater management design manuals.

(5) The stormwater management concept plan shall include a hydrologic/hydraulic analysis of the downstream watercourse for all concentrated surface waters that will be discharged onto a developed property. The program administrator may request relocation of a stormwater outfall if other alternative discharge locations are practical.

(6) Prior to approval of the stormwater management concept plan, the program administrator, or his designee, shall meet on site with the applicant or his representative to field-verify the hydraulic conditions of all receiving channels.

(7) The stormwater management concept plan shall utilize to the maximum extent practicable low-impact development site planning in accordance with the low-impact development design manuals.

(b) *Stormwater management design plans.*

(1) Except as provided for in subsection 21.5-1(f)(2), no grading or building permit shall be issued for land development without approval of a stormwater management design plan unless the applicant can demonstrate compliance with section 21.5-2

(2) The applicant shall demonstrate that the project meets the criteria set forth in this chapter through submission of a stormwater management design plan. Failure of the applicant to demonstrate that the project meets these criteria, as determined by the program administrator, shall be reason to deny approval of the plan.

(3) A stormwater management design plan containing all appropriate information as specified in this chapter shall be submitted to the department of planning and zoning in conjunction with the construction plan.

(4) The stormwater management plan shall provide all appropriate information as identified in the stormwater management design manuals.

(5) The stormwater management plan shall include a hydrologic/hydraulic analysis of the downstream watercourse for all concentrated surface waters that will be discharged onto a developed property. The program administrator may request relocation of a stormwater outfall if other alternative discharge locations are practical.

(6) Prior to approval of the stormwater management plan, the program administrator, or his designee, shall meet on site with the applicant or his representative to field-verify the hydraulic conditions of all receiving channels.

(7) The stormwater management plan shall utilize to the maximum extent practicable low-impact development site planning in accordance with the low-impact development design manuals.

(c) *Stormwater management design plan contents.* The stormwater management design plan shall contain maps, charts, graphs, tables, photographs, narrative descriptions, explanations, and citations to supporting references as appropriate to communicate the information required by this chapter and the stormwater management design manuals and the low-impact development design manuals. At a minimum, the stormwater management design plan shall contain the following:

(1) General.

a. Description of the project, and proposed design, including how water quality, quantity and stormwater drainage requirements will be addressed.

b. Proposed erosion and sediment controls, and proposed temporary and permanent stormwater management facilities.

c. Project schedule, including a sequence of construction.

d. Maps depicting all pertinent stormwater management information necessary for review of the plan as identified in the stormwater management

design manuals, including, but not limited to maps of the drainage area, soils and plan view of the development project.

(2) Stormwater management facilities.

a. Stormwater management facilities identified on a map, including details, plan, profile, cross sections, and other pertinent data necessary for review as identified in the stormwater management design manuals.

b. Comprehensive hydrologic and hydraulic design calculations, including all assumptions and criteria, for the pre-development and post-development conditions for the design storms specified in this chapter or the stormwater management design manuals.

c. If infiltration facilities are proposed, the location of existing and proposed wells and septic system drain fields shall be shown along with an analysis that supports the location of the infiltration facility in the soil type identified.

d. A geotechnical report with recommendations and earthwork specifications in accordance with requirements in the stormwater management design manuals. The geotechnical engineer shall acknowledge on the design plan that the geotechnical recommendations have been incorporated into the design of stormwater management facilities.

e. A landscaping plan describing the woody and herbaceous vegetative stabilization and management techniques to be used within and adjacent to the stormwater management facility in accordance with standards in the stormwater management design manuals.

f. Identification of all easements needed for inspection and maintenance of stormwater management facilities in accordance with specifications in the stormwater management design manuals.

g. A maintenance plan identifying the parts or components of the stormwater management facility that need to be maintained to ensure continued proper functioning of the facility. If the designated maintenance responsibility is with a party other than Stafford County, then a maintenance agreement shall be executed between the responsible party and Stafford County.

(3) Low-impact development sites.

a. Integrated management practices identified on a map and corresponding design details in accordance with the low-impact development design manuals.

b. Hydrologic computations to determine low-impact development stormwater requirements in accordance with the low-impact development design manuals.

c. Hydrologic evaluation and design details for supplemental conventional stormwater management facilities in the event that integrated management practices alone cannot meet site stormwater management requirements.

d. Identification of all storm drainage easements needed to establish locations of integrated management practices.

(4) Stormwater drainage systems.

a. Hydrologic and hydraulic design calculations, including calculations for overlot drainage systems.

b. Design specifications in accordance with the stormwater management design manuals.

c. Identification of all easements needed for inspection and maintenance of drainage systems in accordance with specifications in the stormwater management design manuals.

d. All existing and proposed drainage systems, natural or manmade, shall be analyzed for the one-hundred-year storm impact as required in subsection 11-12(b)(3) a., b. and c.

165 Stormwater Management (SWM) Plan Requirements

A. As required in **Section 150**, a stormwater management plan shall be developed and referenced into the SWPPP.

B. In addition to the plan requirements outlined in **Section 155** and **160**, the stormwater management plan shall include the following:

1. Verification of consistency, when applicable, with the approved *SWM Concept plan* required by the VSMP Authority.
2. A general description of the proposed stormwater management facilities, including:
   a. The type of stormwater facilities;
   b. The location of stormwater facilities, including geographic coordinates;
   c. The acres treated;
   d. The named surface waters to which the facility eventually drains;
3. All necessary documentation and calculations supporting the design and construction of the proposed stormwater management structures, including sufficient details such as cross sections, profiles, dimensions, grades, and other information as needed to ensure that the BMPs are built in accordance with the approved plans and BMP Design Standards and Specifications;
4. Runoff Reduction Method Compliance Spreadsheet Summary Sheet.
5. A landscaping plan prepared by an individual familiar with the selection of appropriate vegetation for the particular BMP (emergent and upland vegetation for wetlands, woody and/or herbaceous vegetative stabilization and management techniques to be used within and adjacent to the stormwater management facilities, etc.). The landscaping plan must also describe the maintenance of vegetation at the site and what practices should be employed to ensure that adequate vegetative cover is preserved.

6. Identification of all easements provided for inspection and maintenance of stormwater management facilities in accordance with specifications in the Stormwater Management Design Manuals.
7. When Applicable, a copy of the VSMP Authority *SWM BMP Operation and Maintenance Agreement* to be recorded in the local land records prior to plan approval. This may be submitted prior to plan approval.
8. When stormwater facilities are proposed on individual residential lots, a copy of the proposed *Residential Lot BMP Inspection and Maintenance Agreement* to be signed by the property owner upon settlement. This may be submiotted prior to plan approval.

C. Stormwater management (SWM) plans shall demonstrate compliance with the following stormwater quality criteria:

1. New development.
    a. The total phosphorus load resulting from a one-inch rainfall on new development projects shall not exceed **0.41 pounds per acre per year**, as calculated using the Virginia Runoff Reduction Method pursuant to VA Administrative Code **4VAC50-60-65**, and using the latest design specifications for BMPs listed as approved on the Virginia BMP Clearinghouse Website
    b. The runoff volume generated by a one-inch rainfall on new development projects shall not exceed **0.18 watershed-inches**, as calculated using the Virginia Runoff Reduction Method.

Reference: 4VAC50-60-63. Water quality design criteria requirements.

2. Development on prior developed lands.
    a. For land-disturbing activities disturbing greater than or equal to one acre that result in no net increase in impervious cover from the predevelopment condition, the total phosphorus load resulting from a one-inch rainfall shall be reduced at least 20% below the predevelopment total phosphorus load.
    b. For regulated land-disturbing activities disturbing less than one acre that result in no net increase in impervious cover from the predevelopment condition, the total phosphorus load resulting from a one-inch rainfall shall be reduced at least 10% below the predevelopment total phosphorus load.
    c. For land-disturbing activities that result in a net increase in impervious cover over the predevelopment condition, the design criteria of Section 1.a. of this subsection for new development shall be applied to the increased impervious area. Depending on the area of disturbance, the criteria of subdivisions 2.a. or 2.b. above, shall be applied to the remainder of the site.

d. In lieu of subdivision (c), the total phosphorus load resulting from a one-inch rainfall on a linear development project occurring on prior developed lands shall be reduced 20% below the redevelopment total phosphorus load.

e. The total phosphorus load shall not be required to be reduced to below the applicable standard for new development.

Reference: 4VAC50-60-63. Water quality design criteria requirements.

D. Stormwater management (SWM) plans shall demonstrate compliance with the following channel protection criteria at each point of discharge to the limits of analysis as described in subsection 4 below:

1. Manmade stormwater conveyance systems. When stormwater from a development is discharged to a manmade stormwater conveyance system, following the land-disturbing activity, either:

   a. The manmade stormwater conveyance system shall convey the postdevelopment peak flow rate from the two-year 24-hour storm event without causing erosion of the system. Detention of stormwater or downstream improvements may be incorporated into the approved land-disturbing activity to meet this criterion, at the discretion of the stormwater program administrative authority; or

   b. The peak discharge requirements for concentrated stormwater flow to natural stormwater conveyance systems in subsection 3 shall be met.

2. Restored stormwater conveyance systems. When stormwater from a development is discharged to a restored stormwater conveyance system that has been restored using natural design concepts, following the land-disturbing activity, either:

   a. The development shall be consistent, in combination with other stormwater runoff, with the design parameters of the restored stormwater conveyance system that is functioning in accordance with the design objectives; or

   b. The peak discharge requirements for concentrated stormwater flow to natural stormwater conveyance systems in subsection 3 shall be met.

3. Natural stormwater conveyance systems. When stormwater from a development is discharged to a natural stormwater conveyance system, the maximum peak flow rate from the one-year 24-hour storm following the land-disturbing activity shall be calculated in accordance with the following methodology:

   $$QDeveloped \leq I.F.*(QPre\text{-}developed* RVPre\text{-}Developed)/RVDeveloped$$

   Under no condition shall QDeveloped be greater than QPre-Developed nor shall QDeveloped be required to be less than that calculated in the equation (QForest * RVForest)/RVDeveloped; where

   I.F. (Improvement Factor) equals 0.8 for sites > 1 acre or 0.9 for sites ≤ 1 acre.
   QDeveloped = The allowable peak flow rate of runoff from the developed site.
   RVDeveloped = The volume of runoff from the site in the developed condition.

QPre-Developed = The peak flow rate of runoff from the site in the pre-developed condition.

RVPre-Developed = The volume of runoff from the site in pre-developed condition.

QForest = The peak flow rate of runoff from the site in a forested condition.

RVForest = The volume of runoff from the site in a forested condition; or

4. Limits of analysis. Unless subsection 3 is utilized to show compliance with the channel protection criteria, stormwater conveyance systems shall be analyzed for compliance with channel protection criteria to a point where either:
    a. Based on land area, the site's contributing drainage area is less than or equal to 1.0% of the total watershed area; or
    b. Based on peak flow rate, the site's peak flow rate from the one-year 24-hour storm is less than or equal to 1.0% of the existing peak flow rate from the one-year 24-hour storm prior to the implementation of any stormwater quantity control measures.

Reference: 4VAC50-60-66. Water quantity.

E. Stormwater management (SWM) plans shall demonstrate compliance with the following flood protection criteria at each point of discharge to the limits of analysis in subsection 3. demonstrated by use of acceptable hydrologic and hydraulic methodologies:

1. Concentrated stormwater flow to stormwater conveyance systems that currently do not experience localized flooding during the 10-year 24-hour storm event: The point of discharge releases stormwater into a stormwater conveyance system that, following the land-disturbing activity, confines the postdevelopment peak flow rate from the 10-year 24-hour storm event within the stormwater conveyance system. Detention of stormwater or downstream improvements may be incorporated into the approved land-disturbing activity to meet this criterion, at the discretion of the stormwater program administrative authority.
2. Concentrated stormwater flow to stormwater conveyance systems that currently experience localized flooding during the 10-year 24-hour storm event: The point of discharge either:
    a. Confines the post-development peak flow rate from the 10-year 24-hour storm event within the stormwater conveyance system to avoid the localized flooding. Detention of stormwater or downstream improvements may be incorporated into the approved land-disturbing activity to meet this criterion, at the discretion of the stormwater program administrative authority; or
    b. Releases a post-development peak flow rate for the 10-year 24-hour storm event that is less than the predevelopment peak flow rate from the 10-year 24-hour storm event. Downstream stormwater conveyance

systems do not require any additional analysis to show compliance with flood protection criteria is this option is utilized.

3. Limits of analysis. Unless 2b above is utilized to comply with the flood protection criteria, stormwater conveyance systems shall be analyzed for compliance with flood protection criteria to a point where:
    a. The site's contributing drainage area is less than or equal to 1.0% of the total watershed area draining to a point of analysis in the downstream stormwater conveyance system;
    b. Based on peak flow rate, the site's peak flow rate from the 10-year 24-hour storm event is less than or equal to 1.0% of the existing peak flow rate from the 10-year 24-hour storm event prior to the implementation of any stormwater quantity control measures; or
    c. The stormwater conveyance system enters a mapped floodplain or other flood prone area, adopted by ordinance, of any locality.

Reference: 4VAC50-60-66. Water quantity

F. Increased volumes of sheet flow resulting from pervious or disconnected impervious areas, or from physical spreading of concentrated flow through level spreaders, must be identified and evaluated for potential impacts on down-gradient properties or resources. Increased volumes of sheet flow that will cause or contribute to erosion, sedimentation, or flooding of down gradient properties or resources shall be diverted to a stormwater management facility or a stormwater conveyance system that conveys the runoff without causing down-gradient erosion, sedimentation, or flooding. If all runoff from the site is sheet flow and the conditions of this subsection are met, no further water quantity controls are required.

G. For purposes of computing predevelopment runoff, all pervious lands on the site shall be assumed to be in good hydrologic condition in accordance with the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) standards, regardless of conditions existing at the time of computation.

H. Predevelopment and post development runoff characteristics and site hydrology shall be verified by site inspections, topographic surveys, available soil mapping or studies, and calculations consistent with good engineering practices. Guidance provided in the Virginia Stormwater Management Handbook and by the Virginia Stormwater BMP Clearinghouse shall be considered appropriate practices.

I. Prior to release of the stormwater plan surety bond, two (2) sets of the construction record drawing or as-built of permanent stormwater management facilities, also referred to as "as-built plans" shall be submitted to the VSMP Authority. The construction as-built shall be appropriately sealed and signed by a professional registered in the Commonwealth of Virginia pursuant to Article 1 (§ 54.1-400 et seq.) of Chapter 4 of Title 54.1. of the Code of Virginia, certifying that the stormwater management facilities have been constructed in accordance with the approved plan.

Reference: 4VAC50-60-108; 4VAC50-60-55.D

J. If an applicant intends to meet the water quality requirements of subsection C of this section through the use of off-site compliance options, then a letter of availability from the off-site provider must be included, and the use of the off-site options shall be in accordance with **(4VAC50-60-69) Offsite compliance options** and any additional implementation criteria or guidance provided by the Virginia Soil and Water Conservation Board.

K. Single family residential construction that is less than one acre of disturbance and part of a larger common plan of development may utilize a *SWPPP Template* and a *BMP Implementation Plan* in order to continue VSMP permit coverage under that which was developed for the larger common plan of development, or if that VSMP Permit has been terminated, to obtain new VSMP Permit coverage. The *SWPPP Template* and *BMP Implementation Plan* shall provide detailed information on the implementation of the SWM load and volume reduction BMPs and other requirements for the particular lot or parcel as detailed in the SWPPP and SWM plans of the VSMP Permit for the larger common plan of development. .

1. If the single family construction intends to utilize different BMPs to comply with the development's load and volume reduction requirements than that which was detailed for the individual lot in the SWPPP and SWM Plan for the larger plan of development, then the single family construction shall submit a SWPPP, an ESC Agreement in Lieu of Plan, and a SWM Plan detailing the new BMP strategy in accordance with the provisions of this chapter.
2. If the area of disturbance for the single family construction described in subsection 1 above is one (1) acre or greater, a separate VSMP Authority Permit and SWPPP as identified in **Section 130** may be required by the VSMP Authority.

L. Stormwater Management Facility Maintenance Agreements: Maintenance of all stormwater management facilities shall be ensured through the creation of a formal maintenance agreement that must be approved by the Director and recorded into the land record prior to issuance of a land disturbing permit.

Reference: §10.1-603.3.E.2; 4VAC50-60-58.

1. Responsibility for the operation and maintenance of stormwater management facilities shall remain with the property owner or an owner's association and shall pass to any successor or owner. If portions of the land are to be sold, legally binding arrangements shall be made to pass the responsibility to successors in title.
2. Maintenance agreements shall meet the following:
    a. Maintenance agreements shall be recorded in the local land records;
    b. Maintenance agreements shall identify the type of stormwater management facility and provide guidance on the required inspection and anticipated maintenance frequency (as provided on the approved

plans), and submission or availability of inspection and maintenance documentation in accordance with the (VSMP Authority) *BMP Inspection & Maintenance Program Manual*;

c. Maintenance agreements shall reference all necessary easements and access to allow required inspections and maintenance of the stormwater management facilities, and shall identify the roles and responsibilities of the easement holder or property owner; and

d. Except as provided in item 3. below, maintenance agreements shall be enforceable (by the VSMP Authority);

3. Individual on-lot stormwater facilities that are designed to primarily manage the runoff from the individual residential lot on which they are located will require a recorded *Residential Lot BMP Inspection & Maintenance Agreement* acknowledging the presence, purpose, location, and basic maintenance requirements for the particular BMP(s) in accordance with the VSMP Authority *BMP Maintenance Program Manual*.

Reference: 4VAC50-60-63. Water quality design criteria requirements; 4VAC50-60-65. Water quality compliance; 4VAC50-60-66. Water quantity; 4VAC50-60-69. Offsite compliance options; 4VAC50-60-72. Design storms and hydrologic methods; 4VAC50-60-76. Linear development projects; 4VAC50-60-85. Stormwater management impoundment structures or facilities.

Sec. 1-7. – POLLUTION PREVENTION PLAN; CONTENTS OF PLANS.

(a) Pollution Prevention Plan, required by 4VAC50-60-56, shall be developed, implemented, and updated as necessary and must detail the design, installation, implementation, and maintenance of effective pollution prevention measures to minimize the discharge of pollutants. At a minimum, such measures must be designed, installed, implemented, and maintained to:

(1) Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;

(2) Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials present on the site to precipitation and to stormwater; and

(3) Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures.

(b) The pollution prevention plan shall include effective best management practices to prohibit the following discharges:

(1) Wastewater from washout of concrete, unless managed by an appropriate control;

(2) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials;

(3) Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and

(4) Soaps or solvents used in vehicle and equipment washing.

(c) Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited unless managed by appropriate controls.

175 Pollution Prevention (PP) Plan

A. A Pollution Prevention (PP) plan is required for all land disturbing activities with VSMP Permit coverage as required in **Section 125**. of this Chapter, and shall be developed for incorporation into the SWPPP.

B. The pollution prevention plan shall include, at a minimum, such measures to:

1. Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;
2. Minimize and manage the normal discharge from drinking water well drilling operations;
3. Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials present on the site to precipitation and to stormwater; and
4. Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures.

C. The PP plan shall also include effective best management practices to prohibit the following discharges:

1. Wastewater from washout of concrete, unless managed by an appropriate control;
2. Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
3. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and
4. Soaps or solvents used in vehicle and equipment washing.

D. The PP plan shall prohibit discharges from dewatering activities, including discharges from dewatering of trenches and excavations unless managed by appropriate controls.

E. The PP plan shall be implemented and updated as necessary throughout all phases of the land-disturbing activity to implement appropriate pollution prevention measures applicable to construction activities.

F. The PP shall be updated as necessary as outlined in **Section 205.C**.

Reference: 4VAC50-60-56. Pollution prevention plans.

180 Total Maximum Daily Load (TMDL) and Exceptional Waters (EW) Action Plan Requirements

A. In addition to the requirements of **Section 150**, any **LDA** that requires VSMP Authority Permit coverage that discharges to impaired waters, surface waters included in TMDL watershed, or exceptional waters as defined in the VSMP Construction General Permit shall develop, implement, and maintain a SWPPP that meets the following requirements:

1. Identify the impaired water(s), associated impairment(s), TMDL name(s), TMDL pollutant(s) of concern, and exceptional waters when applicable;
2. Minimizes applicable observed sources identified in the 2012 305(b)/303(d) Water Quality Assessment Integrated Report, minimizes pollutants of concern identified in a TMDL approved prior to July 1, 2014, and is consistent with the assumptions and requirements of all associated TMDL wasteload allocations when applicable;
3. Requires that the application of nutrients be applied in accordance with manufacturer's recommendations (or a Nutrient Management Plan) and shall not be applied during wet weather events when applicable; and
4. A modified inspection schedule shall be implemented, when applicable in accordance with Section I.B. of the VSMP Construction General Permit (modifications to the SWPPP inspection schedule – requirements of **Section 210.B.**).

Reference: VSMP Construction General Permit 4VAC50-60-1170 Section I.B.3
4VAC50-60-54 Stormwater pollution prevention plan requirements

Sec. 1-8. - REVIEW OF STORMWATER MANAGEMENT PLAN.

(a) The Administrator **[NOTE: May include "or any duly authorized agent of the Administrator"]** shall review stormwater management plans and shall approve or disapprove a stormwater management plan according to the following:

(1) The Administrator shall determine the completeness of a plan in accordance with Section 1-6 of this Ordinance, and shall notify the applicant, in writing, of such determination, within 15 calendar days of receipt. If the plan is deemed to be incomplete, the above written notification shall contain the reasons the plan is deemed incomplete.

(2) The Administrator shall have an additional 60 calendar days from the date of the communication of completeness to review the plan, except that if a determination of completeness is not made within the time prescribed in subdivision (1), then plan shall be deemed complete and the Administrator shall have 60 calendar days from the date of submission to review the plan.

(3) The Administrator shall review any plan that has been previously disapproved, within 45 calendar days of the date of resubmission.

(4) During the review period, the plan shall be approved or disapproved and the decision communicated in writing to the person responsible for the land-disturbing activity or his designated agent. If the plan is not approved, the reasons for not approving the plan shall be provided in writing. Approval or denial shall be based on the plan's compliance with the requirements of this Ordinance.

(5) If a plan meeting all requirements of this Ordinance is submitted and no action is taken within the time provided above in subdivision (2) for review, the plan shall be deemed approved.

(b) Approved stormwater plans may be modified as follows:

(1) Modifications to an approved stormwater management plan shall be allowed only after review and written approval by the Administrator. The Administrator shall have 60 calendar days to respond in writing either approving or disapproving such request.

(2) The Administrator may require that an approved stormwater management plan be amended, within a time prescribed by the Administrator, to address any deficiencies noted during inspection.

(c) The Administrator shall require the submission of a construction record drawing for permanent stormwater management facilities. The Administrator may elect not to require construction record drawings for stormwater management facilities for which recorded maintenance agreements are not required pursuant to Section 1-10 (b).

(d) *Stormwater management design plan approval.* (Sec. 21.5-4)

(1) A maximum of thirty (30) calendar days from the receipt of an application will be allowed for preliminary review of the application to determine if the application is complete. During this period, the application will be accepted for review, which will begin the sixty-day review period, or rejected for incompleteness. The applicant will be informed in writing of the information necessary to complete the application.

(2) The sixty-day review period begins on the day the complete stormwater management design plan is accepted for review. At this time an acknowledgment letter will be sent to the applicant. During the sixty-day review period, the program administrator shall either approve or disapprove the plan and communicate the decision

to the applicant in writing. Approval or denial shall be based on the plan's compliance with this chapter and the stormwater management design manuals. In cases where modifications are required to approve the plan, the county shall have an additional sixty (60) days to review the revised plan from the initial and any subsequent resubmission dates. If the plan is approved, one copy bearing certification of such approval shall be returned to the applicant. If the plan is disapproved, the applicant shall be notified in writing of the reasons.

(3) All plans, profiles, and specifications shall be distributed to the appropriate county departments and/or state agencies for review and recommendation. Comments and recommendations shall be coordinated at the meeting of the technical review committee. The technical review committee shall review the plan for compliance with this chapter.

(4) The applicant or any aggrieved party authorized by law may appeal the program administrator's decision of approval or disapproval of a stormwater management design plan application within thirty (30) days after rendering of such decision by the program administrator, to the board of supervisors.

(e) *Conditions of approval.* (Sec. 21.5-4)

(1) The applicant shall comply with all applicable requirements of the approved plan.

(2) No substantive changes shall be made to an approved plan without review and written approval by the program administrator.

(3) No transfer, assignment, or sale of the rights granted by virtue of an approved plan shall be made unless a written notice of transfer is filed with the program administrator and the transferee certifies agreement to comply with all obligations and conditions of the approved plan.

(4) The stormwater management design plan's approval expires in one year from the date of approval unless a final plat is recorded or unless work has actually begun on the site. The recordation of a final plat for a section of a subdivision (or initiation of construction in a section) does not vest the approval of the stormwater management design plan for the remainder of the subdivision. If the stormwater management design plan expires, the applicant shall file with the program administrator for reapproval of the stormwater management design plan.

(5) Three (3) sets of certified as-built plans, meeting the specifications documented in the stormwater management design manuals, shall be submitted to the program administrator upon completion of the project. Each as-built plan shall have a certification statement by a professional licensed in Virginia to perform such work.

(6) The applicant shall be responsible for implementing the approved plan, and may be required to conduct a monitoring program, if deemed necessary by the program administrator.

(Ord. 003-12, 3-18-03; Ord. No. O04-32, 6-15-04; Ord. No. O10-51, 11-30-10)

185 Review and Approval of Plans

A. Upon receipt of an application for a land disturbing permit and accompanying plans as required by **Section 150** of this ordinance, the VSMP Authority shall determine the completeness of the application and notify the applicant within **15** calendar days if the submittal is considered incomplete.

B. Once the applicant has been notified of a complete submittal, the VSMP Authority shall have an additional **60** calendar days from the date of the communication for the review of the plans to determine compliance with the requirements of this ordinance, and to communicate to the applicant the approval or disapproval of the plans.

C. If a determination of completeness is not made and communicated to the applicant within the **15** calendar days, the plans shall be deemed complete as of the date of submission and a total of **60** calendar days from the date of submission shall be allowed for the review of the plans.

D. If the plans are not approved, the reasons for not approving the plans shall be provided in writing to the applicant.

E. The VSMP Authority shall review within **45** calendar days of the date of resubmission any plans that has been previously disapproved.

F. Unless otherwise indicated in the application, electronic communication shall be considered communication in writing.

Reference: §10.1-563.B; §10.1-603.8.A; 4VAC50-60-55.B Stormwater management plans; 4VAC50-60-108. Stormwater management plan review time

190 Pre-Construction Meeting Required

No land disturbing activities shall commence until a *Pre-Construction Meeting* between the VSMP Authority and the applicant, and the *individual responsible for carrying out the plan* has been conducted. The applicant shall notify the VSMP Authority in advance to schedule the meeting on-site.

195 Issuance, Time Limit, Modification, Maintenance, Transfer and/or Termination of the VSMP Authority Land Disturbing Permit and the VSMP Authority Permit

A. Permit Issuance: Once the requirements for obtaining a VSMP Authority Land Disturbing Permit and coverage under a VSMP Authority Permit (if applicable) have been met, including the receipt or verification of payment of all required permit fees in accordance with the fee schedule of **Section 235**, the VSMP Authority will issue a VSMP Authority Land Disturbing Permit and provide evidence (or require) of coverage under a VSMP Authority permit.

B. No transfer, assignment, or sale of the rights granted by virtue of a the VSMP Authority Land Disturbing Permit shall be made unless a written notice of transfer and corresponding permit modification fee is filed with the Director and the transferee certifies agreement to comply with all obligations and conditions of the permit. The Director may require modification or revocation and reissuance of the VSMP Authority

Permit to change the name of the permittee and incorporate such other requirements as may be necessary for the transfer.

C. If land disturbing activity has not commenced within 180 days of land disturbing or VSMP Authority permit issuance or cease for more than 180 days, the VSMP Authority may evaluate the existing approved ESC plan to determine whether the plan still satisfies local and state erosion and sediment control criteria and to verify that all design factors are still valid. If the previously filed ESC plan is determined to be inadequate a modified plan shall be submitted and approved prior to the resumption of land-disturbing activity..
Reference: 4VAC50-30-80.B Criteria for determining status of land-disturbing activity

D. VSMP Authority Permits are effective for a fixed permit cycle of 5 years. Activities requiring a VSMP permit may obtain coverage at any time during the 5-year permit cycle and must be renewed if the permit has not been terminated prior to the end of the cycle. The annual permit maintenance fees in **Section 235** apply until the permit coverage is terminated or renewed.

E. Land-disturbing activities for which VSMP Permit coverage was issued between July 1, 2009 and June 30, 2014 permit cycle may remain subject to the technical criteria of Part II C of the Virginia Stormwater Regulations for two additional permit cycles provided coverage under the original VSMP Permit is maintained. After two permit cycles have passed, or should the original VSMP Permit coverage not be maintained, portions of the project not under construction shall become subject to any new technical criteria adopted by the VSMP Authority after the original VSMP Permit coverage was issued.

F. Land-disturbing activities for which VSMP Permit coverage was issued between July 1, 2009 and June 30, 2014 permit cycle may elect to modify the permit by paying the appropriate permit modification fee and request approval for compliance with the technical criteria of Part II B for any remaining portions of the project.

Reference: §10.1-603.2. Definitions: "Virginia Stormwater Management Program authority" or "VSMP authority"; 4VAC50-60-47.1. Time limits on applicability of approved design criteria.

200 Variances/Exceptions

A. The VSMP Authority may grant exceptions or modify the ESC requirements of land disturbing activities if they are deemed inappropriate or too restrictive for site conditions by granting a variance. A variance may be granted under the following conditions:

1. At the time of plan submission, an applicant may request a variance from the requirements of an erosion and sediment control plan. The applicant shall explain the reasons for requesting variances in writing. Specific variances which are allowed shall be documented in the plan.
2. During construction, the person responsible for implementing the approved plan may request a variance in writing from the VSMP Authority. The VSMP Authority shall respond in writing either approving or disapproving such a

request. If the *Director* does not approve a variance within 10 days of receipt of the request, the request shall be considered to be disapproved. Following disapproval, the applicant may resubmit a variance request with additional documentation.

3. The Director shall consider variance requests judiciously, keeping in mind both the need of the applicant to maximize cost effectiveness and the need to protect off-site properties and resources from damage.

B. The VSMP Authority may grant exceptions to the Technical Criteria of **Section 165: SWM Plan Requirements**. An exception may be granted provided that:

1. the exception is the minimum necessary to afford relief,
2. reasonable and appropriate conditions shall be imposed as necessary upon any exception granted so that the intent of this chapter is preserved,
3. granting the exception will not confer any special privileges that are denied in other similar circumstances,
4. exception requests are not based upon conditions or circumstances that are self-imposed or self-created, and
5. Economic hardship alone is not sufficient reason to grant an exception from these requirements.

C. Under no circumstance shall an exception to the requirement that the land-disturbing activity obtain required VSMP permits be granted, nor shall the use of a BMP not found on the Virginia Stormwater BMP Clearinghouse Website be approved.

D. Exceptions to requirements for phosphorus reductions shall not be allowed unless offsite options available as described in **Section 165.J** have been considered and found not available.

Reference: 4VAC50-30-50; 4VAC50-60-122

205 Amendments to Approved Plans

A. Amendments to an approved ESC plan may be made once the proposed change has been agreed to by the VSMP Authority and the person responsible for carrying out the plan in the following cases:

1. Where inspection has revealed that the plan is inadequate to satisfy applicable regulations; or
2. Where the person responsible for carrying out the approved plan demonstrates that because of changed circumstances or for other reasons the approved plan cannot effectively be carried out, and proposed amendments to the plan are consistent with the requirements of this article.

   Reference: §10.1-563.C

B. Amendments to an approved SWM Plan may be made only after review and written approval by the VSMP Authority. An approved plan may be modified in accordance with the following:

1. The person responsible for carrying out the approved plan demonstrates in writing to the VSMP Authority that because of changed circumstances or for other reasons the approved plan cannot effectively be carried out, and has proposed amendments to the plan with all necessary calculations and documents consistent with the requirements of this article (Refer to **Section 165**).
2. The VSMP Authority shall have 60 calendar days to respond in writing either approving or disapproving such requests.
3. Based on an inspection, the VSMP Authority may require amendments to the approved stormwater management plan to address any deficiencies within a time frame set by the VSMP Authority.

Reference: 4VAC50-60-108.C

C. Amendments to an approved PP Plan may be required in order to reflect changes in the implementation and an approved ESC or SWM Plan. In addition to the requirements of subsection A and B of this section, the site operator shall document the implementation of the provisions of the PP as follows:

1. The operator shall amend the PP whenever there is a change in design, construction, operation, or maintenance that may have a significant effect on the discharge of pollutants from the construction activity and that has not been previously addressed in the PP.
2. The PP must be amended if during inspections or investigations by the operator's qualified personnel, or by VSMP Authority, state or federal officials, it is determined that the existing control measures are ineffective in minimizing pollutants in stormwater discharges from the construction site.
3. Where revisions to the PP include additional or modified control measures designed to correct problems identified, and where such revisions to the PP require the VSMP Authority approval, the additional control measures shall be completed within seven calendar days of approval or prior to the next anticipated storm event. If implementation before the next anticipated storm event is impracticable, the situation shall be documented in the PP and alternative control measures shall be implemented as soon as practicable.
4. Revisions to the PP must be dated and signed in accordance with Section III of the VSMP permit.

D. Changes to any component of an approved SWPPP with VSMP Permit coverage that result in changes to stormwater management plans or requires additional review by the VSMP Authority shall be subject to permit modification fees set out in **Section 235**.

Sec. 1-9 - TECHNICAL CRITERIA FOR REGULATED LAND DISTURBING ACTIVITIES.

[NOTE: The technical criteria must be part of the VSMP, but are not required to be specifically set out in the local ordinance. Rather, these provisions may be included in a local manual that is referenced within the Ordinance or the Ordinance may reference to the technical criteria provisions of 4VAC50-60-62 through 4VAC50-60-92 of the Regulations as shown in Subsection (a) below. Such state technical criteria or more stringent local standards must be enforceable through the Ordinance.]

(a) To protect the quality and quantity of state water from the potential harm of unmanaged stormwater runoff resulting from land-disturbing activities, the Locality hereby adopts the technical criteria for regulated land-disturbing activities set forth in Part II B of the Regulations, as amended, expressly to include 4VAC50-60-63 [water quality design criteria requirements]; 4VAC50-60-65 [water quality compliance]; 4VAC50-60-66 [water quantity]; 4VAC50-60-69 [offsite compliance options]; 4 VAC 50-60-72 [design storms and hydrologic methods]; 4VAC50-60-74 [stormwater harvesting]; 4VAC50-60-76 [linear development project]; and, 4VAC50-60-85 [stormwater management impoundment structures or facilities], which shall apply to all land-disturbing activities regulated pursuant to this Ordinance, except as expressly set forth in Subsection (b) of this Section.

(b) Until June 30, 2019, any land-disturbing activity for which 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 thereto, was approved by the Locality prior to July 1, 2012, and for which no coverage under the general permit has been issued prior to July 1, 2014, shall be considered grandfathered by the Administrator and shall not be subject to the technical criteria of Part II B [of the Regulations], but shall be subject to the technical criteria of Part II C [of the Regulations] for those areas that were included in the approval, provided that the Administrator finds that such 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 thereto, (i) provides for a layout and (ii) the resulting land-disturbing activity will be compliant with the requirements of Part II C. In the event that the Locality-approved document is subsequently modified or amended in a manner such that there is no increase over the previously approved plat or plan in the amount of phosphorus leaving each point of discharge of the land-disturbing activity through stormwater runoff, and such that there is no increase over the previously approved plat or plan in the volume or rate of runoff, the grandfathering shall continue as before.

(1) Until June 30, 2019, for local, state, and federal projects for which there has been an obligation of local, 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, such projects shall be considered grandfathered by **[insert locality name]** and shall not be subject to the technical requirements of Part II B of the

Regulations, but shall be subject to the technical requirements of Part II C of the Regulations for those areas that were included in the approval.

(2) For land-disturbing activities grandfathered under this Subsection, construction must be completed by June 30, 2019, or portions of the project not under construction shall become subject to the technical requirements of Subsection (a) above.

(c) In cases where governmental bonding or public debt financing has been issued for a project prior to July 1, 2012, such project shall be subject to the technical requirements Part IIC of the Regulations, as adopted by the Locality in Subsection (b) of this Section.

(d) The Administrator may grant exceptions to the technical requirements of Part II B or Part II C of the Regulations, provided that (i) the exception is the minimum necessary to afford relief, (ii) reasonable and appropriate conditions are imposed so that the intent of the Act, the Regulations, and this Ordinance are preserved, (iii) granting the exception will not confer any special privileges that are denied in other similar circumstances, and (iv) exception requests are not based upon conditions or circumstances that are self-imposed or self-created. Economic hardship alone is not sufficient reason to grant an exception from the requirements of this Ordinance.

(1) Exceptions to the requirement that the land-disturbing activity obtain required VSMP authority permit shall not be given by the Administrator, nor shall the Administrator approve the use of a BMP not found on the Virginia Stormwater BMP Clearinghouse Website, or any other control measure duly approved by the Director.

(2) Exceptions to requirements for phosphorus reductions shall not be allowed unless offsite options otherwise permitted pursuant to 4VAC50-60-69 have been considered and found not available.

(e) Nothing in this Section shall preclude an operator from constructing to a more stringent standard at their discretion.

General Standards for Land Disturbing Activity (Sec 11-12)

(a) The standards adopted by the county are those criteria, standards and specifications contained in the Virginia Erosion and Sediment Control Handbook and the Virginia Erosion and Sediment Control Regulations.

(b) The following criteria shall apply to all applications for permits under this chapter. These criteria are in addition to those standards set forth in the handbook referred to in subsection (a) above:

(1) Concentrated stormwater runoff leaving a development site shall be discharged directly into a well-defined, natural or manmade off-site receiving channel, pipe or storm sewer system. If there is not well-defined off-site receiving channel or pipe one must be

constructed to convey stormwater to the nearest adequate channel. Newly constructed channels shall be designed as adequate channels.

(2) An adequate channel shall be defined as a natural or manmade channel or pipe which is capable of conveying the runoff from a ten-year storm without overtopping its banks and from a two-year storm without eroding after development of the site in question. A receiving channel may also be considered adequate at any point where the total contributing drainage area is at least one hundred (100) times greater than the drainage area of the development site in question or if it can be shown that the peak rate of runoff from the site for a two-year storm and for a ten-year storm will not be increased after development.

(3) Runoff rate and channel adequacy must be verified with engineering calculations in accordance with the procedures outlined in of the Virginia Erosion and Sediment Control Handbook or other methods acceptable to the plan-approving authority.

a. Determine the impact, elevation, of the one-hundred-year storm on all existing or proposed stormwater conveyance systems (culverts, storm sewer, ditches, and streams) within or adjacent to the proposed development.

b. Proposed lowest floor elevations shall be no less than one foot above the one-hundred-year flood elevation. Wall penetrations shall be no less than one foot above the one-hundred-year flood elevation.

c. Prior to beginning framing of a structure, the applicant shall provide verifications sealed by a licensed professional engineer or land surveyor that the lowest floor is no less than one foot above the one-hundred-year flood elevation prescribed in subsection (b)(3)a.

(4) If an existing off-site receiving channel is not an adequate channel, the applicant must choose one (1) of the following options.

a. Obtain permission from downstream property owners to improve the receiving channel to an adequate condition. Such improvements shall extend downstream until an adequate channel section is reached; or

b. Develop a site design that will satisfy the stormwater technical criteria for stream channel erosion and flooding as defined in chapter 21.5 (stormwater management ordinance) of this Code; or

c. Provide a combination of channel improvement, stormwater detention or other measures which is satisfactory to the plan-approving authority to prevent downstream channel erosion.

(5) All on-site stormwater conveyance channels shall be designed and constructed to withstand the expected velocity of flow from a two-year frequency storm without erosion. Stabilization adequate to prevent erosion must also be provided at the outlets of all pipes and paved channels.

(6) Except for the months of December through February, all temporary seeding shall conform to the standard and specification for permanent seeding in the Virginia Erosion

and Sediment Control Handbook. If field conditions warrant, the inspector may order that the seeding schedule be adjusted to meet the intent of the Virginia Erosion and Sediment Control Handbook.

(7) Sod shall be installed to provide vegetation stabilization of residential building lots in which lot size is less than thirty thousand (30,000) square feet. Such sod shall be installed in accordance with the Standard and Specification for Sodding in the Virginia Erosion and Sediment Control Handbook.

(8) In addition to the standards and specifications in the Virginia Erosion and Sediment Control Handbook, the following standards shall be indicated on the plan, installed and maintained until permanent stabilization is achieved.

a. Super silt fence (standard silt fence supported by chain link fencing) shall be installed adjacent to critical areas (wet lands, streams, stabilized residential lots).

b. Earth berms shall be used in lieu of a silt fence as a perimeter measure on all non-residential sites and on the perimeter of all subdivision development. This shall not apply to individual single-family home permits.

c. Sediment trapping measures shall provide two hundred sixty-eight (268) cubic yards of storage per acre of total contributing drainage area.

d. Soil stabilization blankets or matting, in accordance with the standards and specifications of the Virginia Erosion and Sediment Control Handbook, shall be installed to provide temporary or permanent stabilization on all slopes equal to or steeper than 3:1.

e. The plan-approving authority or program administrator may require the use of turbidity curtains on a site-specific basis for development projects that drain to a lake or reservoir during plan review or inspection. If a turbidity curtain is required, it shall be installed in accordance with the standards and specifications of the Virginia Erosion and Sediment Control Handbook.

(9) The program administrator may require the use of flocculents to clarify runoff on a site-specific basis to supplement the erosion and sediment controls on the approved erosion and sediment control plan. If required, the engineer or surveyor who prepared the erosion and sediment control plan shall provide specific guidance to facilitate the application of flocculents on the site.

(10) Construction phasing is encouraged for all land development projects and shall be required for those projects that will disturb more than forty (40) acres of land, except for commercial, industrial, institutional, school board, and county development projects. Additionally, the construction of roads and utilities for residential projects in accordance with approved plans shall also be exempt from the construction phasing requirement. The size of the separate construction phases on a project and the elements of the phasing plan shall be established during plan review and are subject to approval by the plan approving authority. The phasing plan shall address, but not be limited to, the following factors:

a. The size of the land disturbance.

b. The presence of steep slopes greater than twenty-five (25) percent.
c. The presence of highly erodible soils.
d. The proximity of the site to perennial or intermittent streams located either on the development site or located on an abutting or adjacent property.
e. The ability of traditional/conventional erosion and sediment controls to provide adequate control of sediment and erosion for the land-disturbing activity.
f. The proposed use or type of development occurring on the property and the anticipated duration of the land disturbing activity.
g. The ability to balance cuts and fills on the site within each phase of the development.

Where construction phasing is required, no additional portions of the development site shall be disturbed until it has been determined by inspection and approval, that the initial or previous phasing area has been stabilized. The permit holder shall be required to mark the limits of clearing allowable for any construction phasing area as established by the approved plan either with temporary fencing, reflective tape, signs or such other acceptable methods clearly delineating for workers on the site the limits of clearing allowed in any single approved construction phase. No applicant shall be permitted to circumvent the requirement for phasing by applying for separate permits for adjoining portions of lands smaller in size than the threshold size requirement for construction phasing provided above when it is clear from other documents and/or plats or plans that the intended development of the land, as a whole, is for a single connected project. The requirements for construction phasing in this section shall apply to erosion and sediment control plans submitted on or after July 2, 2008.

(Ord. No. 082-09, § 31-5, 5-18-82; Ord. No. 089-117, 12-5-89; Ord. No. 091-48(R), 9-17-91; Ord. No. 095-18(R), 3-7-95; Ord. No. 095-18(R-1), 6-6-95; Ord. No. 000-88, 10-17-00; Ord. No. 003-13, 3-18-03; Ord. No. O04-32, 6-15-04; Ord. No. O07-67, 9-4-07; Ord. No. O08-52, 7-1-08)

145 Applicable Design Standards, Specifications and Methods

A. The standards contained within the Virginia Erosion and Sediment Control Regulations (VESCR), the Virginia Erosion and Sediment Control Handbook (VESCH) (latest edition), the Virginia Stormwater Management Handbook (VSMH) (latest Edition), and any additional guidance provided by the VSMP Authority are to be used by the applicant in the preparation and submission of an erosion and sediment control plan, and by the VSMP Authority in considering the adequacy of a plan submittal. When the standards vary between the publications, the state regulations shall take precedence.

B. The latest approved version of BMPs found on the Virginia Stormwater BMP Clearinghouse Website at http://www.vwrrc.vt.edu/swc shall be utilized to effectively

reduce the Pollutant load and runoff volume (if criteria for runoff volume are adopted) as required in this chapter in accordance with the Virginia Runoff Reduction Method.

C. Proposed residential, commercial, or industrial subdivisions shall apply these stormwater management criteria to the development project as a whole. Individual lots or parcels shall not be considered separate development projects, but rather the entire subdivision shall be considered a single development project. Hydrologic parameters shall reflect the ultimate development and shall be used in all engineering calculations.

D. Unless otherwise specified, the following shall apply to the hydrologic computations of this section:

1. The prescribed design storms are the one-year, two-year, and 10-year 24-hour storms using the site-specific rainfall precipitation frequency data recommended by the U.S. National Oceanic and Atmospheric Administration (NOAA) Atlas 14 and provided in the VA SWM Handbook.
2. All hydrologic analyses shall be based on the existing watershed characteristics and how the ultimate development condition of the subject project will be addressed.
3. The U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) synthetic 24-hour rainfall distribution and models, including, but not limited to TR-55 and TR-20; hydrologic and hydraulic methods developed by the U.S. Army Corps of Engineers; or other NRCS standard hydrologic and hydraulic methods, shall be used to conduct the analyses described in this part.

Reference: 4VAC50-60-65. Water quality compliance; 4VAC50-60-66. Water quantity; 4VAC50-60-72. Design storms and hydrologic methods; 4VAC50-60-85. Stormwater management impoundment structures or facilities

160 Erosion and Sediment Control (ESC) Requirements

A. As required in **Section 150**, an erosion and sediment control plan shall be developed and referenced into the SWPPP.

B. In addition to incorporation of the appropriate ERI requirements of **Section 155.E**, the ESC plan shall detail the methods and techniques to be utilized in the control of erosion, sedimentation and stormwater consistent with the VESCH and other guidance provided by the VSMP Authority.

C. When the land disturbing activity is part of a larger common plan of development, the ESC plan shall demonstrate compliance with the approved SWPPP for the larger common plan of development , and shall contain the following:

1. A statement incorporating by reference the minimum standards of the Virginia erosion and sediment control regulations (4VAC50-30) of the board -.
2. Information and/or statements demonstrating compliance with the minimum standards of the erosion and sediment control regulations of the board (4VAC50-30). Compliance with the water quantity requirements of § 10.360 Code of

Virginia shall be deemed to satisfy the requirements of 4VAC50-30-40.19 (Minimum Standard 19 of the Virginia Erosion and Sediment Control Regulations).

3. A statement by the permitee that all erosion and sediment control measures shall be maintained and that the permittee will inspect the erosion and sediment control measures at least once in every two-week period and within 48 hours following rainstorm events of 0.25 inches or greater during construction to ensure continued compliance with the approved plan. Records of self-inspection shall be maintained on the site and available for review by county inspectors.
4. The location, dimensions, and other information as required to ensure the proper construction and maintenance of all temporary erosion and sediment controls necessary to comply with the provisions of this chapter;
5. Calculations for sediment traps, basins, outlet protection, etc. as applicable
6. A sequence of construction and clear delineation of the initial areas of land disturbance necessary for installation of the initial erosion and sediment control measures such as earthen dams, dikes, and diversions. The areas of initial land disturbance shall be the minimum necessary for installation of the initial erosion and sediment control measures and the delineation should include all areas necessary for such installation, including stockpiles, borrow areas, and staging areas. The sequence should also include the stabilization of these areas *immediately* upon reaching final grade.
7. Clear delineation of the proposed areas of land disturbance and those areas to be protected from construction activity and traffic, including the following:
    a. Minimize the disturbance of slopes 15% or greater.
    b. Minimize soil compaction and, unless infeasible, preserve topsoil.
8. Requirement that final stabilization of disturbed areas shall be initiated immediately upon reaching final grade on any portion of the site, and that temporary stabilization shall be initiated immediately upon areas that may not be at final grade but will remain dormant for longer than 14 days. Stabilization shall be applied within 7 days of initiating stabilization activities.
9. A comprehensive drainage plan including:
    a. The existing and proposed drainage patterns on the site;
    b. All contributing drainage areas to permanent stormwater practices and temporary sediment controls;
    c. Existing streams, ponds, culverts, ditches, wetlands, other water bodies, and floodplains as referenced in the ERI;
    d. Land cover such as forest meadow, and other vegetative areas;
    e. Current land use including existing structures, roads, and locations of known utilities and easements;

f. Sufficient information on adjoining parcels to assess the impacts of stormwater from the site on these parcels;
g. Proposed buildings, roads, parking areas, utilities, and stormwater management facilities; and
h. Proposed land use with tabulation of the percentage of surface area to be adapted to various uses, including but not limited to forest or reforestation, buffers, impervious cover, managed turf (lawns), and easements.

10. The location of any stormwater management practices and sequence of construction;
11. Temporary natural vegetated buffers in accordance with the requirements of the VSMP Construction General Permit. . These buffers shall be delineated on the ESC Plan and protected with accepted signage, safety fence, or other barrier.

D. In lieu of the plan described in subsections A and B of this section, single family residential construction that is not part of a larger common plan of development, including additions or modifications to an existing single-family detached residential structures, may execute an *ESC Agreement in Lieu of an Erosion and Sediment Control Plan* with VSMP Authority.

E. In lieu of the plan described in subsections A and B of this section, single family residential construction that is part of a larger common plan of development, may execute an *ESC Agreement in Lieu of an Erosion and Sediment Control Plan* with VSMP Authority that demonstrates compliance with the practices and strategies identified for the lot or parcel in the larger common plan of development SWPPP.

Reference: 4VAC50-60-1170 Section II.A.1

Sec. 1-10 - LONG-TERM MAINTENANCE OF PERMANENT STORMWATER FACILITIES

(a) The Administrator shall require the provision of long-term responsibility for and maintenance of stormwater management facilities and other techniques specified to manage the quality and quantity of runoff. Such requirements shall be set forth in an instrument recorded in the local land records prior to general permit termination or earlier as required by the Administrator and shall at a minimum:

(1) Be submitted to the Administrator for review and approval prior to the approval of the stormwater management plan;

(2) Be stated to run with the land;

(3) Provide for all necessary access to the property for purposes of maintenance and regulatory inspections;

(4) Provide for inspections and maintenance and the submission of inspection and maintenance reports to the Administrator; and

(5) Be enforceable by all appropriate governmental parties.

(b) **[Optional]** At the discretion of the Administrator, such recorded instruments need not be required for stormwater management facilities designed to treat stormwater runoff primarily from an individual residential lot on which they are located, provided it is demonstrated to the satisfaction of the Administrator that future maintenance of such facilities will be addressed through an enforceable mechanism at the discretion of the Administrator.

(c) **[Optional - Applicable only if Subsection 1-10 (b) is included]** If a recorded instrument is not required pursuant to Subsection 1-10 (b), the Administrator shall develop a strategy for addressing maintenance of stormwater management facilities designed to treat stormwater runoff primarily from an individual residential lot on which they are located. Such a strategy may include periodic inspections, homeowner outreach and education, or other method targeted at promoting the long-term maintenance of such facilities. Such facilities shall not be subject to the requirement for an inspection to be conducted by the Administrator **[NOTE: May include "or any duly authorized agent of the Administrator"]**.

Keep the above.

Sec. 1-11. - MONITORING AND INSPECTIONS.

(a) The Administrator **[NOTE: May include "or any duly authorized agent of the Administrator"]** shall inspect the land-disturbing activity during construction for:

(1) Compliance with the approved erosion and sediment control plan;

(2) Compliance with the approved stormwater management plan;

(3) Development, updating, and implementation of a pollution prevention plan; and

(4) Development and implementation of any additional control measures necessary to address a TMDL.

(b) The Administrator **[NOTE: May include "or any duly authorized agent of the Administrator"]** may, at reasonable times and under reasonable circumstances, enter any establishment or upon any property, public or private, for the purpose of obtaining

information or conducting surveys or investigations necessary in the enforcement of the provisions of this Ordinance.

(c) In accordance with a performance bond with surety, cash escrow, letter of credit, any combination thereof, or such other legal arrangement or instrument, the Administrator may also enter any establishment or upon any property, public or private, for the purpose of initiating or maintaining appropriate actions which are required by the permit conditions associated with a land-disturbing activity when a permittee, after proper notice, has failed to take acceptable action within the time specified.

(d) Pursuant to § 10.1-603.12:2 of the Code of Virginia, the Administrator may require every VSMP authority permit applicant or permittee, or any such person subject to VSMP authority permit requirements under this Ordinance, to furnish when requested such application materials, plans, specifications, and other pertinent information as may be necessary to determine the effect of his discharge on the quality of state waters, or such other information as may be necessary to accomplish the purposes of this Ordinance. **[NOTE: Please see § 10.1-603.12:2 regarding protection of specified confidential information.]**

(e) Post-construction inspections of stormwater management facilities required by the provisions of this Ordinance shall be conducted by the Administrator **[NOTE: May include "or any duly authorized agent of the Administrator"]** pursuant to the Locality's adopted and State Board approved inspection program, and shall occur, at minimum, at least once every five (5) years except as may otherwise be provided for in Section 1-10.

Sec. 21.5-5. - Inspection and maintenance.

(a) Inspections.

(1) A preconstruction conference between the county, the applicant, and the person(s) performing the work shall be required.

(2) On-site inspections will be conducted by the county and the applicant in accordance with the stormwater management design manuals. Essential elements of such inspection shall include:

a. Inspection immediately following preliminary site preparation, including stripping of vegetation, stockpiling of soil, and construction of temporary stormwater management facilities.

b. Inspections during construction of the permanent stormwater management facilities.

c. Final inspection of the project to ensure that stormwater management facilities have been constructed in accordance with the approved stormwater management design plan and the stormwater management design manuals.

(3) All inspections pursuant to this section shall be documented by a written report or log containing dates and times of inspections and comments concerning verbal communications relating to the project.

(4) If, at any stage of the development, the county determines that the soil or other physical conditions on the site are not as stated or shown on the approved stormwater management plan, or the county determines that the storm drainage system or stormwater management facility is inadequate or not constructed as shown on the approved stormwater management design plan, the county may refuse to approve further work and the county may revoke existing permits or approvals until a revised stormwater management design plan has been submitted and approved.

(5) Final certification of compliance with the construction specifications and integrity of all storm drainage and stormwater management facilities and their appurtenant structures shall be provided on the as-built plan by a professional licensed in Virginia to perform such work.

(b) Maintenance.

(1) Responsibility for the operation and maintenance of the stormwater management facilities and storm drainage system, unless assumed by Stafford County, shall remain with the property owner or an owner's association. All maintenance activities shall be in accordance with standard maintenance practices for stormwater management facilities and the stormwater management design manuals.

(2) If the designated maintenance responsibility is with a party other than Stafford County, then a maintenance agreement and plan shall be executed between the responsible party and Stafford County. The maintenance agreement shall be recorded with the Clerk of the Circuit Court of Stafford County prior to or in conjunction with recordation of a plat or approval of the site plan.

(3) To ensure proper performance of the stormwater facility, the property owner or owner's association is responsible for inspecting and performing all necessary maintenance and repairs to the stormwater management facility in accordance with the approved maintenance plan and the stormwater management design manuals. The responsible party shall keep written records of inspections and maintenance/repairs and make them available to the county upon request.

(4) The county shall notify the property owner or owner's association in writing when a determination has been made that the stormwater management facility is in disrepair or is not functioning as intended. The notice shall specify the measures needed to comply with the plan and shall specify the time within which such measures shall be completed. If the responsible party fails to perform such maintenance and repair, the county shall have the authority to perform the work and recover the costs from the responsible party.

(Ord. 003-12, 3-18-03)

210 Monitoring and Inspections during Land Disturbing Activities;

All erosion and sediment control measures must be periodically inspected by the *individual responsible for carrying out the plan* and properly maintained in effective operating condition in accordance with the approved plans and the VESCH. If site inspections identify control measures that are not operating effectively, maintenance shall be performed as soon as practicable to maintain the continued effectiveness of stormwater controls.

Reference: §10.1-566.A. 4VAC50-30-60

A. All land disturbing activities covered by a VSMP Permit shall be inspected by the *individual responsible for carrying out the plan* in accordance with the requirements of the VSMP Construction General Permit and as follows:
   1. At least every seven calendar days; or
   2. At least once every 14 calendar days and within 48 hours following any rainfall event of 0.25 inches or greater.
   3. Where areas have been temporarily stabilized such inspections shall be conducted at least once every month.
   4. The *individual responsible for carrying out the plan* shall maintain records of inspections and maintenance in order to determine whether the measures required in the plan are effective in controlling erosion and sedimentation and to ensure compliance with the approved plan. Records shall be made available to the VSMP Authority inspector upon request.

B. All land disturbing activities covered by a VSMP Permit that are required to implement a TMDL and EW Action Plan in accordance with **Section 180** of this ordinance (and the VSMP CGP 4VAC50-60-1170 Section I.B) shall be inspected by the *individual responsible for carrying out the plan* in accordance with the VSMP CGP and the following:
   1. At least once every four days; or
   2. At least once every seven days and no later than 48 hours following any rainfall event of 0.25 inches or more. In the event that a 0.25-inch storm event occurs when there are more than 48 hours between normal working days, the inspection shall be conducted on the next working day.

C. The VSMP Authority will inspect all regulated land disturbing activities in accordance with the approved alternate inspection schedule to ensure compliance with the approved SWPPP. The owner, permittee or person responsible for carrying out the plan or agreement shall be given notice of the inspection.

D. Inspection of the construction of permanent stormwater management facilities will be required at critical stages of construction by the VSMP Authority Inspector to ensure compliance with the approved plans and BMP specifications. As an alternative, the VSMP Authority may accept the submittal of inspection reports certifying that the stormwater management facilities are being constructed in accordance with the approved plan conducted by a person who is licensed as a professional engineer, architect,

landscape architect, or land surveyor pursuant to Article 1 (§54.1-400 et seq.) of Chapter 4 of Title 54.1; a person who works under the direction and oversight of the licensed professional engineer, architect, landscape architect, or land surveyor; or a person who holds an appropriate certificate of competence from the board.

E. Prior to the release of any performance bonds or termination of the VSMP Authority Permit, the applicant shall submit the required as-built drawings for the stormwater management facilities as described in **Section 165;**

Reference 4VAC50-60-108

F. The right-of-entry for the VSMP Authority to conduct such inspections shall be expressly reserved in the permit. The permit holder, or his duly designated representative, shall be afforded the opportunity to accompany the inspectors.

Reference 4VAC50-60-1170.Section III.W

215 Monitoring and Inspections of Permanent Stormwater Management Facilities

A. Owners of stormwater management facilities shall be responsible for conducting inspections and performing maintenance in accordance with the recorded *Stormwater BMP Maintenance Agreement* as described in **Section 165** and as follows:

1. Except as provided in item 4 of this section, owners shall conduct and document an annual inspection of stormwater BMPs in accordance with the VSMP Authority *BMP Inspection & Maintenance Program Manual.*
2. Except as provided in item 4 of this section, owners of stormwater BMPs shall provide for a comprehensive BMP inspection and report in accordance with the VSMP Authority *BMP Inspection & Maintenance Program Manual* at least once every five-years and submitted to the VSMP Authority. The inspection shall be conducted by an individual who is licensed as a professional engineer, architect, landscape architect, or land surveyor practicing within the area of expertise as described pursuant to Article 1 (§ 54.1-400 et seq.) of Chapter 4 of Title 54.1, a person who works under the direction and oversight of the licensed professional engineer, architect, landscape architect, or land surveyor, or who holds a certificate of competence in Project Inspection for SWM from the board.

Reference 4VAC50-60-114.C

3. Except as provided in item 4 of this section, the property owner or designated agent responsible for inspecting and ensuring all necessary maintenance and repairs to the stormwater management facility in accordance with the recorded maintenance agreement shall keep written records of inspections and maintenance/repairs in accordance with the VSMP Authority *BMP Inspection & Maintenance Program Manual.*
4. Inspection of stormwater management facilities designed to treat stormwater runoff primarily from the individual residential lot on which they are located shall be conducted by the property owner in accordance with VSMP Authority *Residential Lot BMP Inspection & Maintenance Agreement* and the *VSMP*

Authority BMP Inspection & Maintenance Program Manual and are not subject to the comprehensive inspection and documentation provisions of items 2 and 3, respectively, of this section.

B. The VSMP Authority will ensure that all stormwater management facilities are being inspected and maintained according to the following:
   1. The VSMP Authority shall track the 5-year frequency comprehensive inspection report submittals as required by the recorded maintenance agreement and in accordance with the *BMP Inspection & Maintenance Program Manual.*
   2. The VSMP Authority shall conduct maintenance inspections at a minimum of once every 5 years for certain BMPs as defined in the *BMP Inspection & Maintenance Program Manual.*
   3. The right-of-entry for VSMP Authority to conduct such inspections shall be expressly reserved in the *Maintenance Agreements*. The owner, or his duly designated representative, shall be afforded the opportunity to accompany the inspectors.

C. The VSMP Authority shall notify the property owner or owner's association in writing in accordance with **Section 225.B.1.** to the address as identified in the *SWM BMP Inspection and Maintenance Agreement* when a determination has been made that the stormwater management facility is in disrepair or is not functioning as intended. The notice shall specify the measures needed to comply with the approved maintenance plan and shall specify the time within which such measures shall be completed. If the responsible party fails to perform such maintenance and repair, the county shall have the authority to initiate enforcement action in accordance with **Section 225.D**, and perform the work and recover the costs from the responsible party.

All erosion and sediment control measures must be periodically inspected by the *individual responsible for carrying out the plan* and properly maintained in effective operating condition in accordance with the approved plans and the VESCH. If site inspections identify control measures that are not operating effectively, maintenance shall be performed as soon as practicable to maintain the continued effectiveness of stormwater controls.
Reference: §10.1-566.A. 4VAC50-30-60

(a) All land disturbing activities covered by a **[local governing body]**Land Disturbing Permit or a VSMP Permit shall be inspected by the *individual responsible for carrying out the plan* in accordance with the requirements of the VSMP Construction General Permit and as follows:
   1. At least every seven calendar days; or
   2. At least once every 14 calendar days and within 48 hours following any rainfall event of 0.25 inches or greater.
   3. Where areas have been temporarily stabilized such inspections shall be conducted at least once every month.
   4. The *individual responsible for carrying out the plan* shall maintain records of

inspections and maintenance in order to determine whether the measures required in the plan are effective in controlling erosion and sedimentation and to ensure compliance with the approved plan. Records shall be made available to the VSMP Authority inspector upon request.

(b) All land disturbing activities covered by a **[local governing body]**Land Disturbing Permit or a VSMP Permit that are required to implement a TMDL and/or an EW Action Plan in accordance with VSMP CGP 4VAC50-60-1170 Section I.B, shall be inspected by the *individual responsible for carrying out the plan* in accordance with the VSMP CGP and the following:

1. At least once every four days; or
2. At least once every seven days and no later than 48 hours following any rainfall event of 0.25 inches or more. In the event that a 0.25-inch storm event occurs when there are more than 48 hours between normal working days, the inspection shall be conducted on the next working day.

(c) The VSMP Authority will inspect all regulated land disturbing activities in accordance with the approved alternate inspection schedule to ensure compliance with the approved SWPPP. The owner, permittee or person responsible for carrying out the plan or agreement shall be given notice of the inspection.

(d) Inspection of the construction of permanent stormwater management facilities will be required at critical stages of construction by the VSMP Authority Inspector to ensure compliance with the approved plans and BMP specifications. As an alternative, the VSMP Authority may accept the submittal of inspection reports certifying that the stormwater management facilities are being constructed in accordance with the approved plan conducted by a person who is licensed as a professional engineer, architect, landscape architect, or land surveyor pursuant to Article 1 (§54.1-400 et seq.) of Chapter 4 of Title 54.1; a person who works under the direction and oversight of the licensed professional engineer, architect, landscape architect, or land surveyor; or a person who holds an appropriate certificate of competence from the board.

(e) Prior to the release of any performance bonds or termination of the **[local governing body]**Land Disturbing Permit or VSMP Authority Permit, the applicant shall submit the required as-built drawings for the stormwater management facilities as described in **Section 1-6;** Final certification of compliance with the construction specifications and integrity of all storm drainage and stormwater management facilities and their appurtenant structures shall be provided on the as-built plans by a professional licensed in Virginia to perform such work.
Reference 4VAC50-60-108

(f) The right-of-entry for the VSMP Authority to conduct such inspections shall be expressly reserved in the permit. The permit holder, or his duly designated representative, shall be afforded the opportunity to accompany the inspectors.
Reference 4VAC50-60-1170.Section III.W

Monitoring and Inspections of Permanent Stormwater Management Facilities

(a) Owners of stormwater management facilities shall be responsible for conducting inspections and performing maintenance in accordance with the recorded *Stormwater BMP Maintenance Agreement* as described in **Section 1-6** and as follows:

1. Except as provided in item 4 of this section, owners shall conduct and document an annual inspection of stormwater BMPs in accordance with the VSMP Authority *BMP Inspection & Maintenance Program Manual.*
2. Except as provided in item 4 of this section, owners of stormwater BMPs shall provide for a comprehensive BMP inspection and report in accordance with the VSMP Authority *BMP Inspection & Maintenance Program Manual* at least once every five-years and submitted to the VSMP Authority. The inspection shall be conducted by an individual who is licensed as a professional engineer, architect, landscape architect, or land surveyor practicing within the area of expertise as described pursuant to Article 1 (§ 54.1-400 et seq.) of Chapter 4 of Title 54.1, a person who works under the direction and oversight of the licensed professional engineer, architect, landscape architect, or land surveyor, or who holds a certificate of competence in Project Inspection for SWM from the board.
Reference 4VAC50-60-114.C
3. Except as provided in item 4 of this section, the property owner or designated agent responsible for inspecting and ensuring all necessary maintenance and repairs to the stormwater management facility in accordance with the recorded maintenance agreement shall keep written records of inspections and maintenance/repairs in accordance with the VSMP Authority *BMP Inspection & Maintenance Program Manual.*
4. Inspection of stormwater management facilities designed to treat stormwater runoff primarily from the individual residential lot on which they are located shall be conducted by the property owner in accordance with VSMP Authority *Residential Lot BMP Inspection & Maintenance Agreement* and the *VSMP Authority BMP Inspection & Maintenance Program Manual* and are not subject to the comprehensive inspection and documentation provisions of items 2 and 3, respectively, of this section.

(b) The VSMP Authority will ensure that all stormwater management facilities are being inspected and maintained according to the following:

1. The VSMP Authority shall track the 5-year frequency comprehensive inspection report submittals as required by the recorded maintenance agreement and in accordance with the *BMP Inspection & Maintenance Program Manual.*

2. The VSMP Authority shall conduct maintenance inspections at a minimum of once every 5 years for certain BMPs as defined in the *BMP Inspection & Maintenance Program Manual.*
3. The right-of-entry for VSMP Authority to conduct such inspections shall be expressly reserved in the *Maintenance Agreements*. The owner, or his duly designated representative, shall be afforded the opportunity to accompany the inspectors.

(c) The VSMP Authority shall notify the property owner or owner's association in writing in accordance with **Section 1-14** to the address as identified in the *SWM BMP Inspection and Maintenance Agreement* when a determination has been made that the stormwater management facility is in disrepair or is not functioning as intended. The notice shall specify the measures needed to comply with the approved maintenance plan and shall specify the time within which such measures shall be completed. If the responsible party fails to perform such maintenance and repair, the county shall have the authority to initiate enforcement action in accordance with **Section 1-14**, and perform the work and recover the costs from the responsible party.

Sec. 1-12. – HEARINGS

(a) Any permit applicant or permittee, or person subject to Ordinance requirements, aggrieved by any action of the **[Locality]** taken without a formal hearing, or by inaction of the **[Locality]**, may demand in writing a formal hearing by the **[Local governing or appeals body]** causing such grievance, provided a petition requesting such hearing is filed with the Administrator within 30 days after notice of such action is given by the Administrator.

(b) The hearings held under this Section shall be conducted by the **[local governing or appeals body]** at a regular or special meeting of the **[local governing or appeals body]**, or by at least one member of the **[local governing or appeals body]** designated by the **[local governing or appeals body]** to conduct such hearings on behalf of the **[local governing or appeals body]** at any other time and place authorized by the **[local governing or appeals body]**.

(c) A verbatim record of the proceedings of such hearings shall be taken and filed with the **[local governing or appeals body]**. Depositions may be taken and read as in actions at law.

(d) The **[local governing or appeals body]** or its designated member, as the case may be, shall have power to issue subpoenas and subpoenas duces tecum, and at the request of

any party shall issue such subpoenas. The failure of a witness without legal excuse to appear or to testify or to produce documents shall be acted upon by the local governing body, or its designated member, whose action may include the procurement of an order of enforcement from the circuit court. Witnesses who are subpoenaed shall receive the same fees and reimbursement for mileage as in civil actions.

230 Hearings

Any person subject to the VSMP Authority Land Disturbing Permit or VSMP Authority Permit requirements aggrieved by any action of the VSMP Authority taken without a formal hearing, or by inaction of the VSMP Authority may demand in writing a formal hearing by the VSMP Authority, provided a petition requesting such hearing is filed with the VSMP Authority within 30 days after notice of such action. Any hearings conducted by the VSMP Authority shall be in accordance with *§ 10.1-603.12:7. Code of Virginia.*
Reference: *§ 10.1-603.12:6. Right to hearing.*

Any person subject to the VSMP Authority Land Disturbing Permit or VSMP Authority Permit requirements aggrieved by any action of the VSMP Authority taken without a formal hearing, or by inaction of the VSMP Authority may demand in writing a formal hearing by the VSMP Authority, provided a petition requesting such hearing is filed with the VSMP Authority within 30 days after notice of such action. Any hearings conducted by the VSMP Authority shall be in accordance with *§ 10.1-603.12:7. Code of Virginia.*
Reference: *§ 10.1-603.12:6. Right to hearing.*

Sec. 1-13. - APPEALS.

[NOTE: The locality shall adopt an appeals procedure. This procedure should be appropriate for the stormwater ordinance provisions and be consistent with the limitations within § 10.1-603.13 of Chapter 6 of Title 10.1 of the Code of Virginia.]

Sec. 11-10. - Appeals from decisions under chapter to circuit court.

Final decisions of the county under this chapter shall be subject to review by the circuit court of the county, provided an appeal is filed within thirty (30) days from the date of any written decision adversely affecting the rights, duties or privileges of a person engaging in or proposing to engage in land-disturbing activities.

(Ord. No. 082-09, § 31-12, 5-18-82; Ord. No. 095-18(R), 3-7-95; Ord. No. 095-18(R-1), 6-6-95)

Final decisions of the **[Locality]** under this chapter shall be subject to review by the circuit court of the **[Locality]**, provided an appeal is filed within thirty (30) days from the date of any written decision adversely affecting the rights, duties or privileges of a person engaging

in or proposing to engage in land-disturbing activities.

(§ 10.1-603.13 of Chapter 6 of Title 10.1 of the Code of Virginia.)

Sec. 1-14. - ENFORCEMENT

(a) If the Administrator determines that there is a failure to comply with the VSMP authority permit conditions or determines there is an unauthorized discharge, notice shall be served upon the permittee or person responsible for carrying out the permit conditions by any of the following: verbal warnings and inspection reports, notices of corrective action, consent special orders, and notices to comply. Written notices shall be served by registered or certified mail to the address specified in the permit application or by delivery at the site of the development activities to the agent or employee supervising such activities.

(1) The notice shall specify the measures needed to comply with the permit conditions and shall specify the time within which such measures shall be completed. Upon failure to comply within the time specified, a stop work order may be issued in accordance with Subsection (b) or the permit may be revoked by the Administrator.

(2) If a permittee fails to comply with a notice issued in accordance with this Section within the time specified, the Administrator may issue an order requiring the owner, permittee, person responsible for carrying out an approved plan, or the person conducting the land-disturbing activities without an approved plan or required permit to cease all land-disturbing activities until the violation of the permit has ceased, or an approved plan and required permits are obtained, and specified corrective measures have been completed.

Such orders shall be issued in accordance with **[refer to local procedures]**. Such orders shall become effective upon service on the person by certified mail, return receipt requested, sent to his address specified in the land records of the locality, or by personal delivery by an agent of the Administrator. However, if the Administrator finds that any such violation is grossly affecting or presents an imminent and substantial danger of causing harmful erosion of lands or sediment deposition in waters within the watersheds of the Commonwealth or otherwise substantially impacting water quality, it may issue, without advance notice or hearing, an emergency order directing such person to cease immediately all land-disturbing activities on the site and shall provide an opportunity for a hearing, after reasonable notice as to the time and place thereof, to such person, to affirm, modify, amend, or cancel such emergency order. If a person who has been issued an order is not complying with the terms thereof, the Administrator may institute a proceeding for an

injunction, mandamus, or other appropriate remedy in accordance with Subsection 1-14 (c).

(b) In addition to any other remedy provided by this Ordinance, if the Administrator or his designee determines that there is a failure to comply with the provisions of this Ordinance, they may initiate such informal and/or formal administrative enforcement procedures in a manner that is consistent with **[reference local public facilities/engineering manual and/or specific policy]**.

(c) Any person violating or failing, neglecting, or refusing to obey any rule, regulation, ordinance, order, approved standard or specification, or any permit condition issued by the Administrator may be compelled in a proceeding instituted in **[insert appropriate local court]** by the Locality to obey same and to comply therewith by injunction, mandamus or other appropriate remedy.

(d) Any person who violates any provision of this Ordinance or who fails, neglects, or refuses to comply with any order of the Administrator, shall be subject to a civil penalty not to exceed $32,500 for each violation within the discretion of the court. Each day of violation of each requirement shall constitute a separate offense.

(1) Violations for which a penalty may be imposed under this Subsection shall include but not be limited to the following:
- (i) No state permit registration;
- (ii) No SWPPP;
- (iii) Incomplete SWPPP;
- (iv) SWPPP not available for review;
- (v) No approved erosion and sediment control plan;
- (vi) Failure to install stormwater BMPs or erosion and sediment controls;
- (vii) Stormwater BMPs or erosion and sediment controls improperly installed or maintained;
- (viii) Operational deficiencies;
- (ix) Failure to conduct required inspections;
- (x) Incomplete, improper, or missed inspections; and
- (xi) Discharges not in compliance with the requirements of Section 4VAC 50-60-1170 of the general permit.

(2) The Administrator may issue a summons for collection of the civil penalty and the action may be prosecuted in the appropriate court.

(3) In imposing a civil penalty pursuant to this Subsection, the court may consider the degree of harm caused by the violation and also the economic benefit to the violator from noncompliance.

(4) Any civil penalties assessed by a court as a result of a summons issued by the Locality shall be paid into the treasury of the **[Locality]** to be used for the purpose of

minimizing, preventing, managing, or mitigating pollution of the waters of the locality and abating environmental pollution therein in such manner as the court may, by order, direct.

(e) Notwithstanding any other civil or equitable remedy provided by this Section or by law, any person who willfully or negligently violates any provision of this Ordinance, any order of the Administrator, any condition of a permit, or any order of a court shall, be guilty of a misdemeanor punishable by confinement in jail for not more than 12 months or a fine of not less than $2,500 nor more than $32,500, or both.

Sec. 21.5-9. - Penalties; enforcement.

(a) If the program administrator determines that there is a failure to comply with the approved plan, notice of such failure shall be served upon the applicant or person responsible for implementing the plan by registered or certified mail or by delivery to the land development site. The notice shall specify the measures needed to comply with the plan and shall specify the time within which such measures shall be completed.
(b) Upon failure to comply within the time specified, the permit or approval may be revoked and the applicant or person responsible for implementing the plan shall be deemed to be in violation of this chapter.
(c) Any person who violates any provision of this chapter shall be guilty of a misdemeanor and shall be subject to a fine or imprisonment for each violation, or both, as provided for in § 10.1-603.14, Code of Virginia (1950), as amended.
(d) The program administrator may apply to the circuit court to enjoin a violation or a threatened violation of this chapter as provided for in § 10.1-603.14, Code of Virginia (1950), as amended, without the necessity of showing that an adequate remedy of law does not exist.
(e) Without limiting the remedies which may be obtained in this section, the program administrator may bring a civil action against any person or violation of this chapter, or any condition of the permit or approval. The action may seek to impose a civil penalty of not more than two thousand dollars ($2,000.00) for each violation as provided for in § 10.1-603.14 of the Code of Virginia 1950, as amended.
(f) With the consent of the person who has violated or failed, neglected, or refused to obey this chapter or any condition of the permit or approval, the program administrator may issue an order against or to such person for the payment of civil charges for violations in specific sums, not to exceed the limit specified in subsection (e) of this section as provided for in § 10.1-603.14, Code of Virginia 1950, as amended. Such civil charges shall be instead of any appropriate civil penalty, which could be imposed under subsection (e) of this section.
(Ord. 003-12, 3-18-03)

Sec. 21.5-22. - Penalties for violations.
(a) Any person who knowingly violates any provision of this article shall be guilty of a class 1 misdemeanor. Each day that such violation is committed, and each day that such violation is permitted to remain uncorrected shall constitute a separate offense.
(b) Any person who otherwise violates any provision of this article shall be subject to civil penalty between two hundred and fifty dollars ($250) and one thousand dollars ($1,000) for each day that the violation continues. The court assessing such civil penalty may order the penalty to

be paid into the treasury of the county and designated for the purpose of minimizing, preventing, managing or mitigating pollution of the waters of the United States.

(c) Any person who violates any provision of this article shall be responsible for testing, containing, cleaning up, abating, removing and disposing of any substance unlawfully discharged into the stormwater system or into waters of the county, or, if the director determines that correction of the violation can best be accomplished by the county, shall be liable to the county for all costs of testing, containment, cleanup, abatement, removal and disposal of any substance unlawfully discharged into the storm sewer system or into waters of the United States.

(Ord. No. O05-61, 12-13-05)

Sec. 11-7. - Same—Penalty.

(a) Enforcement. The county attorney's office will assist with the enforcement of this chapter.

(b) Civil penalties.

(1) A civil penalty in the amount listed on the schedule below shall be assessed for each violation of the respective offenses:

a. Commencement of land-disturbing activity without an approved plan as provided in subsection 11-14(a) shall be one thousand dollars ($1,000.00) per day.

b. Failure to comply with any of the minimum standards of the Virginia Erosion and Sediment Control Regulations shall be one thousand dollars ($1,000.00) per violation per day.

c. Failure to comply with any of the standards of section 11-12 shall be one thousand dollars ($1,000.00) per violation per day.

d. Failure to obey a stop-work order shall be one thousand dollars ($1,000.00) per day.

e. Failure to stop work when permit is revoked shall be one thousand dollars ($1,000.00) per day.

(2) Each day during which the violation is found to have existed shall constitute a separate offense. However, in no event shall a series of specified violations arising from the same operative set of facts result in civil penalties which exceed a total of ten thousand dollars ($10,000.00).

(c) Civil violations, summons, generally.

(1) The program administrator shall prepare an appropriate "erosion and sediment control civil violations summons" for use in enforcing the provisions of this chapter.

(2) Any inspector of the plan-approving authority charged with enforcing this chapter shall serve upon any owner or permittee in violation of this chapter a summons notifying the owner or permittee of said violation. If unable to serve the owner or permittee in person, the inspector may notify by summons an owner or permittee committing or suffering the existence of a violation by certified, return receipt requested mail, of the infraction. The Stafford County Sheriff's Office may also deliver the summons. The summons shall contain the following:

a. The name and address of the person charged.

b. The nature of the violation and ordinance provision(s) being violated.

c. The location, date, and time that the violation occurred, or was observed.

d. The amount of the civil penalty assessed for the violation.

e. The manner, location, and time that the civil penalty may be paid to the County.

f. The right of the recipient of the summons to elect to stand trial for the infraction and the date of such trial.

(3) The summons shall provide that any person summoned for a violation may within five (5) business days of actual receipt of the summons or, within ten (10) calendar days from the date of mailing of the summons, elect to pay the civil penalty by making an appearance in person, or in writing by mail to the Stafford County Treasurer's Office and, by such appearance, may enter a waiver of trial, admit liability, and pay the civil penalty established for the violation charged and provide that a signature to an admission of liability shall have the same force and effect as a judgment in court; however, an admission shall not be deemed a criminal conviction for any purpose.

(4) If a person charged with a violation does not elect to enter a waiver of trial and admit liability, the county shall cause the Sheriff of Stafford County to serve the summons on the person charged in the manner prescribed by law. The violation shall be tried in the Stafford County General District Court in the same manner and with the same right of appeal as provided for in title 8.01, Code of Virginia. In any trial for a scheduled violation authorized by this section, it shall be the burden of the county to show the liability of the violator by the preponderance of the evidence. Any admission of liability, or finding of liability shall not be a criminal conviction for any purpose.

(5) The remedies provided for in this section are cumulative, and are not exclusive and, except as provided above, shall be in addition to any other remedies by law.

(6) The owner or permittee may pay the civil penalty to the treasurer prior to the trial date, provided he also pays necessary court costs in addition to the civil penalty.

(7) Within the time period prescribed in (3), above, the owner or permittee may contest the violation by presenting it to the program administrator, who shall certify the contest in writing, on an appropriate form, to the general district court.

(8) Failure to pay the civil penalty, or to contest the violation, within the time period prescribed in 3., above, shall result in the immediate issuance of a stop work order and the revocation of the permit, if any.

(Ord. No. 095-18(R), 3-7-95; Ord. No. 095-18(R-1), 6-6-95; Ord. No. O04-32, 6-15-04; Ord. No. O07-65, 9-4-07)

225 Enforcement

A. If, during inspections at any stage of the land disturbing activity, the VSMP Authority determines that the operator has failed to comply with the approved plan, including but not limited to failure to install or properly install stormwater BMPs or erosion and sediment controls, The VSMP Authority shall serve notice upon the permittee or person responsible for carrying out the permit conditions as follows:

1. A Notice to Comply shall be sent as follows:
    a. Certified mail or return receipt requested, sent to the address specified by the owner or permittee in his application or plan certification; or
    b. Delivery at the site of the land disturbing activities to the agent or employee supervising such activities.

2. The notice shall specify the measures necessary to comply with the plan or agreement in lieu of a plan and shall specify the time within which such measures shall be completed.
3. Stop Work Order:
    a. If a permittee fails to comply with a notice to comply issued in accordance with subsection 1 within the time specified, the VSMP Authority may issue an order requiring the owner, permittee, or person responsible for carrying out the approved plan, to cease all land-disturbing activities until the violation of the permit has ceased or the specified corrective actions have been taken. Such orders shall become effective upon service on the person by certified mail, return receipt requested, sent to his address specified in the registration statement, or by personal delivery by an agent of the VSMP authority or Department.
    b. In addition to the cessation of all land disturbing activites as described in subsection a above, the permitee may also be subject having the VSMP Authority permit revoked; and furthermore, he shall be deemed to be in violation of this ordinance and, upon conviction, shall be subject to the penalties as provided in the Code of Virginia **or** by this ordinance.

    Reference: §10.1-569. Penalties, injunctions and other legal actions; §10.1-603.14 Penalties, injunctions, and other legal actions

    c. Where the alleged noncompliance is causing or is in imminent danger of causing harmful erosion of lands or sediment deposition in surface waters within the watersheds of the state, or where the land disturbing activities have commenced without an approved plan, agreement in lieu of a plan or any required permits, such an order may be issued without regard to whether or not the owner or permittee has been issued a notice to comply.

B. If, at any stage of the land disturbing activity, the VSMP Authority determines that the physical conditions on the site are not as stated or shown on the approved erosion and sediment control plan or stormwater management plan, or the county determines that the storm drainage system or stormwater management facility is inadequate or not constructed as shown on the approved stormwater management final plan, the VSMP Authority may refuse to approve further work and the county may revoke existing permits or approvals until a revised stormwater management final plan has been submitted and approved.

C. Commencing Land Disturbing Activities without an Approved Plan or a Permit
    1. If land disturbing activities have commenced without an approved plan, agreement in lieu of a plan, or a VSMP Authority Permit where required, a stop work order may be issued requiring that all land disturbing activities be stopped until an approved plan, an agreement in lieu of a plan or any required permits are obtained.

2. The stop work order shall remain in effect for a period of seven calendar days from the date of service pending application by the director or alleged violator for appropriate relief to the circuit court of the jurisdiction wherein the violation is alleged to have occurred. If the alleged violator has not obtained an approved plan, agreement in lieu of a plan or any required permits within seven days from the date of service of the order, the director may issue an order to the owner requiring that all construction and other work on the site, other than corrective measures, be stopped until an approved plan, agreement in lieu of a plan or any required permits have been obtained. The order shall be served upon the owner by registered or certified mail to the address specified in the permit application or the land records of the county.
3. The owner may appeal the issuance of an order to the circuit court.

D. Maintenance of permanent stormwater facilities

1. If during periodic inspections to ensure that stormwater management facilities are being adequately maintained as designed, the VSMP Authority identifies operational deficiencies and/or determines that the owner of the stormwater management facility has failed to perform maintenance or conduct maintenance inspections in accordance with the recorded *SWM BMP Maintenance and Inspection* agreement, the VSMP Authority shall notify the person or organization responsible for carrying out the requirements of the agreement in accordance with **item B.1** of this section. The notice shall specify the deficiencies, the corrective actions required to restore the facility, and the time frame within which the corrective actions shall be completed.
2. If the individual or organization fails to comply with the notice within the time specified, the VSMP Authority may initiate informal and/or formal administrative enforcement procedures including but not limited to directives issued by the Board in accordance with subdivision 7 of § 10.1-603.2:1, or civil penalties in accordance with this ordinance and §10.1-603.14.

E. Any person violating or failing, neglecting, or refusing to obey any rule, regulation, ordinance, order, approved standard or specification, or any permit condition issued by the VSMP Authority or any provisions of this chapter may be compelled in a proceeding instituted in any appropriate court by the VSMP Authority to obey same and to comply therewith by injunction, mandamus or other appropriate remedy. Nothing in this section shall prevent the VSMP Authority from taking additional enforcement action permitted by state law.

F. Any person who violates any provision of this chapter or of any regulations or ordinances, or standards and specifications adopted or approved hereunder, including those adopted pursuant to the a VSMP permit, or who fails, neglects or refuses to comply with any order of the VSMP Authority, the Department, the board, or court, shall be guilty of a class 1 misdemeanor subject to a civil penalty not to exceed $32,500 for each

violation within the discretion of the court. Each day of violation of each requirement shall constitute a separate offense.

Reference: § 10.1-603.14.Code of Virginia

1. Violations for which a penalty may be imposed under this subsection shall include but not be limited to the following:
    i. no permit registration,
    ii. no SWPPP,
    iii. incomplete SWPPP;
    iv. SWPPP not available for review;
    v. no approved erosion and sediment control plan;
    vi. failure to install stormwater BMPs or erosion and sediment controls;
    vii. stormwater BMPs or erosion and sediment controls improperly installed or maintained;
    viii. operational deficiencies;
    ix. failure to conduct required inspections;
    x. incomplete, improper, or missed inspections; and
    xi. Discharges not in compliance with the requirements of Section 4VAC 50-60-1170 of the VSMP Construction General Permit.
2. The VSMP Authority may issue a summons for collection of the civil penalty and the action may be prosecuted in the appropriate court.
3. In imposing a civil penalty pursuant to this subsection, the court may consider the degree of harm caused by the violation and also the economic benefit to the violator from noncompliance.
4. Any civil penalties assessed by a court as a result of a summons issued by the Locality shall be paid into the treasury of the VSMP Authority to be used for the purpose of minimizing, preventing, managing, or mitigating pollution of the waters of the locality and abating environmental pollution therein in such manner as the court may, by order, direct.

G. Notwithstanding any other civil or equitable remedy provided by this section, any person who willfully or negligently violates any provision of this chapter, any order of the Locality or the Department, any condition of a permit, or any order of a court shall be guilty of a misdemeanor punishable by confinement in jail for not more than 12 months and a fine of not less than $2,500 nor more than $32,500, either or both.

Reference: §10.1-566A, §10.1-569, §10.1-603.11.

A. If, during inspections at any stage of the land disturbing activity, the VSMP Authority determines that the operator has failed to comply with the approved plan, including but not limited to failure to install or properly install stormwater BMPs or erosion and sediment controls, The VSMP Authority shall serve notice upon the permittee or person responsible for carrying out the permit conditions as follows:
    a. A Notice to Comply shall be sent as follows:

d. Certified mail or return receipt requested, sent to the address specified by the owner or permittee in his application or plan certification; or

e. Delivery at the site of the land disturbing activities to the agent or employee supervising such activities.

4. The notice shall specify the measures necessary to comply with the plan or agreement in lieu of a plan and shall specify the time within which such measures shall be completed.

5. Stop Work Order:

a. If a permittee fails to comply with a notice to comply issued in accordance with subsection 1 within the time specified, the VSMP Authority may issue an order requiring the owner, permittee, or person responsible for carrying out the approved plan, to cease all land-disturbing activities until the violation of the permit has ceased or the specified corrective actions have been taken. Such orders shall become effective upon service on the person by certified mail, return receipt requested, sent to his address specified in the registration statement, or by personal delivery by an agent of the VSMP authority or Department.

b. In addition to the cessation of all land disturbing activites as described in subsection a above, the permitee may also be subject to having the VSMP Authority permit revoked; and furthermore, he shall be deemed to be in violation of this ordinance and, upon conviction, shall be subject to the penalties as provided in the Code of Virginia **or** by this ordinance.

Reference: §10.1-569. Penalties, injunctions and other legal actions; §10.1-603.14 Penalties, injunctions, and other legal actions

c. Where the alleged noncompliance is causing or is in imminent danger of causing harmful erosion of lands or sediment deposition in surface waters within the watersheds of the state, or where the land disturbing activities have commenced without an approved plan, agreement in lieu of a plan or any required permits, such an order may be issued without regard to whether or not the owner or permittee has been issued a notice to comply.

B. If, at any stage of the land disturbing activity, the VSMP Authority determines that the physical conditions on the site are not as stated or shown on the approved erosion and sediment control plan or stormwater management plan, or the **[Locality]** determines that the storm drainage system or stormwater management facility is inadequate or not constructed as shown on the approved stormwater management final plan, the VSMP Authority may refuse to approve further work and the VSMP Authority may revoke existing permits or approvals until a revised stormwater management final plan has been submitted and approved.

C. Commencing Land Disturbing Activities without an Approved Plan or a Permit

a. If land disturbing activities have commenced without an approved plan, agreement in lieu of a plan, **[local governing body]** Land Disturbing Permit, or a VSMP Authority Permit where required, a stop work order may be issued requiring that all land disturbing activities be stopped until an approved plan, an agreement in lieu of a plan or any required permits are obtained.

4. The stop work order shall remain in effect for a period of seven calendar days from the date of service pending application by the director or alleged violator for appropriate relief to the circuit court of the jurisdiction wherein the violation is alleged to have occurred. If the alleged violator has not obtained an approved plan, agreement in lieu of a plan or any required permits within seven days from the date of service of the order, the director may issue an order to the owner requiring that all construction and other work on the site, other than corrective measures, be stopped until an approved plan, agreement in lieu of a plan or any required permits have been obtained. The order shall be served upon the owner by registered or certified mail to the address specified in the permit application or the land records of the county.

5. The owner may appeal the issuance of an order to the circuit court.

E. Maintenance of permanent stormwater facilities

1. If during periodic inspections to ensure that stormwater management facilities are being adequately maintained as designed, the VSMP Authority identifies operational deficiencies and/or determines that the owner of the stormwater management facility has failed to perform maintenance or conduct maintenance inspections in accordance with the recorded *SWM BMP Maintenance and Inspection* agreement, the VSMP Authority shall notify the person or organization responsible for carrying out the requirements of the agreement in accordance with **item B.1** of this section. The notice shall specify the deficiencies, the corrective actions required to restore the facility, and the time frame within which the corrective actions shall be completed.

2. If the individual or organization fails to comply with the notice within the time specified, the VSMP Authority may initiate informal and/or formal administrative enforcement procedures including but not limited to directives issued by the Board in accordance with subdivision 7 of § 10.1-603.2:1, or civil penalties in accordance with this ordinance and §10.1-603.14.

H. Any person violating or failing, neglecting, or refusing to obey any rule, regulation, ordinance, order, approved standard or specification, or any permit condition issued by the VSMP Authority or any provisions of this chapter may be compelled in a proceeding instituted in any appropriate court by the VSMP Authority to obey same and to comply therewith by injunction, mandamus or other appropriate remedy. Nothing in this section shall prevent the VSMP Authority from taking additional

enforcement action permitted by state law.

I. Any person who violates any provision of this chapter or of any regulations or ordinances, or standards and specifications adopted or approved hereunder, including those adopted pursuant to the a VSMP permit, or who fails, neglects or refuses to comply with any order of the VSMP Authority, the Department, the board, or court, shall be guilty of a class 1 misdemeanor subject to a civil penalty not to exceed $32,500 for each violation within the discretion of the court. Each day of violation of each requirement shall constitute a separate offense.

Reference: § 10.1-603.14.Code of Virginia

5. Violations for which a penalty may be imposed under this subsection shall include but not be limited to the following:
   i. no permit registration,
   ii. no SWPPP,
   iii. incomplete SWPPP;
   iv. SWPPP not available for review;
   v. no approved erosion and sediment control plan;
   vi. failure to install stormwater BMPs or erosion and sediment controls;
   vii. stormwater BMPs or erosion and sediment controls improperly installed or maintained;
   viii. operational deficiencies;
   ix. failure to conduct required inspections;
   x. incomplete, improper, or missed inspections; and
   xi. Discharges not in compliance with the requirements of Section 4VAC 50-60-1170 of the VSMP Construction General Permit.
6. The VSMP Authority may issue a summons for collection of the civil penalty and the action may be prosecuted in the **[Locality]** court.
7. In imposing a civil penalty pursuant to this subsection, the court may consider the degree of harm caused by the violation and also the economic benefit to the violator from noncompliance.
8. Any civil penalties assessed by a court as a result of a summons issued by the **[Locality]** shall be paid into the treasury of the VSMP Authority to be used for the purpose of minimizing, preventing, managing, or mitigating pollution of the waters of the **[Locality]** and abating environmental pollution therein in such manner as the court may, by order, direct.

J. Notwithstanding any other civil or equitable remedy provided by this section, any person who willfully or negligently violates any provision of this chapter, any order of the **[Locality]** or the Department, any condition of a permit, or any order of a court shall be guilty of a misdemeanor punishable by confinement in jail for not more than 12 months and a fine of not less than $2,500 nor more than $32,500, either or both.

Reference: §10.1-566A, §10.1-569, §10.1-603.11.

Sec. 1-15. - FEES [INCLUSION OF FEES IN THE ORDINANCE IS OPTIONAL]

(a) Fees to cover costs associated with implementation of a VSMP related to land disturbing activities and issuance of general permit coverage and VSMP authority permits shall be imposed in accordance with Table 1. **[NOTE: Such fee attributes include the costs associated with plan review, VSMP registration statement review, permit issuance, state-coverage verification, inspections, reporting, and compliance activities associated with land-disturbing activities as well as state program oversight costs.]** When a site or sites has been purchased for development within a previously permitted common plan of development or sale, the Applicant shall be subject to fees ("total fee to be paid by applicant" column) in accordance with the disturbed acreage of their site or sites according to Table 1.

Table 1: Fees for permit issuance

Fee type	Total fee to be paid by Applicant (includes both VSMP authority and Department portions where applicable)	Department portion of "total fee to be paid by Applicant" (based on 28% of total fee paid*)
Chesapeake Bay Preservation Act Land-Disturbing Activity (not subject to General Permit coverage; sites within designated areas of Chesapeake Bay Act localities with land-disturbance acreage equal to or greater than 2,500 square feet and less than 1 acre)	$290	$0
General / Stormwater Management - Small Construction Activity/Land Clearing (Areas within common plans of development or sale with land disturbance acreage less than 1 acre.)	$290	$81
General / Stormwater Management - Small Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 1 acre and less than 5 Acres)	$2,700	$756
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 5 acres and less than 10 acres)	$3,400	$952
General / Stormwater Management – Large Construction Activity/Land Clearing [Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 10 acres and less than 50 acres]	$4,500	$1,260
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 50 acres and less than 100 acres)	$6,100	$1,708
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or	$9,600	$2,688

Fee type	Total fee to be paid by Applicant (includes both VSMP authority and Department portions where applicable)	Department portion of "total fee to be paid by Applicant" (based on 28% of total fee paid*)
greater than 100 acres)		

* If the project is completely administered by the Department such as may be the case for a state or federal project or projects covered by individual permits, the entire applicant fee shall be paid to the Department.

(b) Fees for the modification or transfer of registration statements from the general permit issued by the State Board shall be imposed in accordance with Table 2. If the general permit modifications result in changes to stormwater management plans that require additional review by the **[insert locality name]**, such reviews shall be subject to the fees set out in Table 2. The fee assessed shall be based on the total disturbed acreage of the site. In addition to the general permit modification fee, modifications resulting in an increase in total disturbed acreage shall pay the difference in the initial permit fee paid and the permit fee that would have applied for the total disturbed acreage in Table 1. **[NOTE: Fees specified in this Subsection go to the locality.]**

Table 2: Fees for the modification or transfer of registration statements for the General Permit for Discharges of Stormwater from Construction Activities

Type of Permit	Fee Amount
General / Stormwater Management – Small Construction Activity/Land Clearing (Areas within common plans of development or sale with land disturbance acreage less than 1 acre)	$20
General / Stormwater Management – Small Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 1 and less than 5 acres)	$200
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 5 acres and less than 10 acres)	$250
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 10 acres and less than 50 acres)	$300
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 50 acres and less than 100 acres)	$450
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 100 acres)	$700

(c) The following annual permit maintenance shall be imposed in accordance with Table 3, including fees imposed on expired permits that have been administratively continued.

With respect to the general permit, these fees shall apply until the permit coverage is terminated. **[NOTE: Fees specified in this Subsection go to the locality.]**

Table 3: Permit Maintenance Fees

Type of Permit	Fee Amount
Chesapeake Bay Preservation Act Land-Disturbing Activity (not subject to General Permit coverage; sites within designated areas of Chesapeake Bay Act localities with land-disturbance acreage equal to or greater than 2,500 square feet and less than 1 acre)	$50
General / Stormwater Management – Small Construction Activity/Land Clearing (Areas within common plans of development or sale with land disturbance acreage less than 1 acre)	$50
General / Stormwater Management – Small Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance equal to or greater than 1 acre and less than 5 acres)	$400
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 5 acres and less than 10 acres)	$500
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 10 acres and less than 50 acres)	$650
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 50 acres and less than 100 acres)	$900
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater 100 acres)	$1,400

General permit coverage maintenance fees shall be paid annually to the **[Locality]**, by the anniversary date of general permit coverage. No permit will be reissued or automatically continued without payment of the required fee. General permit coverage maintenance fees shall be applied until a Notice of Termination is effective.

(d) The fees set forth in Subsections (a) through (c) above, shall apply to:

(1) All persons seeking coverage under the general permit.

(2) All permittees who request modifications to or transfers of their existing registration statement for coverage under a general permit.

(3) Persons whose coverage under the general permit has been revoked shall apply to the Department for an Individual Permit for Discharges of Stormwater From Construction Activities.

(4) Permit and permit coverage maintenance fees outlined under Section 1-15 (c) may apply to each general permit holder.

(e) No general permit application fees will be assessed to:

(1) Permittees who request minor modifications to general permits as defined in Section 1-2 of this Ordinance. Permit modifications at the request of the permittee resulting in changes to stormwater management plans that require additional review by the Administrator shall not be exempt pursuant to this Section.

(2) Permittees whose general permits are modified or amended at the initiative of the Department, excluding errors in the registration statement identified by the Administrator or errors related to the acreage of the site.

(f) All incomplete payments will be deemed as nonpayments, and the applicant shall be notified of any incomplete payments. Interest may be charged for late payments at the underpayment rate set forth in §58.1-15 of the Code of Virginia and is calculated on a monthly basis at the applicable periodic rate. A 10% late payment fee shall be charged to any delinquent (over 90 days past due) account. The **[Locality]** shall be entitled to all remedies available under the Code of Virginia in collecting any past due amount.

Sec. 11-16. - Same—Fees.

(a) The fee for a grading permit shall be in accordance with the fee schedule established by the board of supervisors. An annual renewal fee in accordance with such fee schedule will be charged for those projects extending for more than one year.
(b) The fees imposed by this section is for the purpose of defraying the costs of reviewing plans and specifications and costs of inspections and administering the provisions of this chapter. (Ord. No. 082-09, § 31-10, 5-18-82; Ord. No. 087-07, 1-6-87; Ord. No. 089-75, 7-5-89; Ord. No. 091-48(R), 9-17-91; Ord. No. 095-18(R-1), 6-6-95; Ord. No. 099-39, 7-13-99)

235 Fees

A. In addition to the fee for the VSMP Authority Land Disturbing Permit, fees for coverage under the VSMP Authority Permit shall be imposed in accordance with Table 1. When a site or sites have been purchased for development within a previously permitted common plan of development or sale, the applicant shall be subject to fees in accordance with the disturbed acreage of their site or sites according to Table 1.
Reference: Part XIII of the VSMP Regulations

Table 1: Fees for coverage under the VSMP Construction General Permit

Type of Permit	Total Fee Paid by Applicant	Portion to be Paid to DCR
VSMP General / Stormwater Management - Small Construction Activity/Land Clearing (Areas within common plans of development or sale with land disturbance acreage less than 1 acre.)	$290	$0
VSMP General / Stormwater Management - Small Construction Activity/Land Clearing (Sites or areas within common plans of development	$2,700	$756

Type of Permit	Total Fee Paid by Applicant	Portion to be Paid to DCR
or sale with land disturbance acreage equal to or greater than 1 acre and less than 5 Acres)		
VSMP General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 5 acres and less than 10 acres)	$3,400	$952
VSMP General / Stormwater Management – Large Construction Activity/Land Clearing [Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 10 acres and less than 50 acres]	$4,500	$1,260
VSMP General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 50 acres and less than 100 acres)	$6,100	$1708
VSMP General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 100 acres)	$9,600	$2,688

B. Fees for the modification or transfer of coverage under the VSMP Construction *General Permit* issued by the VSMP Authority shall be imposed in accordance with Table 2. If the permit modifications result in changes to stormwater management plans that require additional review by the VSMP Authority, such reviews shall be subject to the fees set out in Table 2 based on the total disturbed acreage of the site. Modifications resulting in an increase in total disturbed acreage shall pay the difference in the initial state permit fee paid and the state permit fee that would have applied for the total disturbed acreage in Table 1.

Table 2: Fees for the modification or transfer of registration statements for the VSMP Authority Permit for Discharges of Stormwater from Construction Activities

Type of Permit	Fee Amount
VSMP General / Stormwater Management – Small Construction Activity/Land Clearing (Areas within common plans of development or sale with land disturbance acreage less than 1 acre)	$20
VSMP General / Stormwater Management – Small Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 1 and less than 5 acres)	$200
VSMP General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 5 acres and less than 10 acres)	$250
VSMP General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 10 acres and less than 50 acres)	$300
VSMP General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 50 acres and less than 100 acres)	$450
VSMP General / Stormwater Management – Large Construction Activity/Land Clearing	$700

Type of Permit	Fee Amount
(Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 100 acres)	

C. Permit maintenance fees. (4 VAC50-60-830):

1. The following annual permit maintenance shall be imposed in accordance with Table 3, including fees imposed on expired permits that have been administratively continued. With respect to the VSMP Authority Permit, these fees shall apply until the permit coverage is terminated.
2. VSMP Authority Permit coverage maintenance fees shall be paid annually to the VSMP Authority, by the anniversary date of VSMP Authority General Permit coverage, in accordance with Table 3. No VSMP Authority permit will be reissued or automatically continued without payment of the required fee. VSMP Authority permit coverage maintenance fees shall be applied until a Notice of Termination is effective.

Table 3: VSMP Authority *Permit Maintenance Fees*

Type of Permit	Fee Amount
VSMP General / Stormwater Management – Small Construction Activity/Land Clearing (Areas within common plans of development or sale with land disturbance acreage less than 1 acre)	$50
VSMP General / Stormwater Management – Small Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance equal to or greater than 1 acre and less than 5 acres)	$400
VSMP General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 5 acres and less than 10 acres)	$500
VSMP General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 10 acres and less than 50 acres)	$650
VSMP General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 50 acres and less than 100 acres)	$900
VSMP General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater 100 acres)	$1,400

D. The fees set forth in Sections A-C, above shall apply to:

1. All persons seeking coverage under the VSMP Authority Permit.
2. All permittees who request modifications to or transfers of their existing registration statement for coverage under a VSMP Authority Permit.
3. Persons whose coverage under the VSMP Authority Permit has been revoked shall reapply for an Individual Permit for Discharges of Stormwater From Construction Activities.

4. Permit and permit coverage maintenance fees outlined under Section may apply to each VSMP Authority Permit holder.

E. No VSMP Authority Permit application fees will be assessed to Permittees whose permits are modified or amended at the initiative of the VSMP Authority, excluding errors in the registration statement identified by the Director or errors related to the acreage of the site.

F. All incomplete VSMP permit fee payments will be deemed as nonpayments, and the applicant shall be notified of any incomplete permit fee payments. Interest may be charged for late permit fee payments at the underpayment rate set forth in §58.1-15 of the Code of Virginia and is calculated on a monthly basis at the applicable periodic rate. A 10% late payment fee shall be charged to any delinquent (over 90 days past due) account. The VSMP Authority shall be entitled to all remedies available under the Code of Virginia in collecting any past due amount.

Under discussion.

1-16. Performance Bond (4VAC50-60-104.D and Code § 603.8(A)) [Optional]

Prior to issuance of any permit, the Applicant **[option: shall/may]** be required to submit a reasonable performance bond with surety, cash escrow, letter of credit, any combination thereof, or such other legal arrangement acceptable to the [local government attorney], to ensure that measures could be taken by the **[Locality]** at the Applicant's expense should he fail, after proper notice, within the time specified to initiate or maintain appropriate actions which may be required of him by the permit conditions as a result of his land disturbing activity. If the **[Locality]** takes such action upon such failure by the Applicant, the Locality may collect from the Applicant for the difference should the amount of the reasonable cost of such action exceed the amount of the security held, if any. Within 60 days of the completion of the requirements of the permit conditions, such bond, cash escrow, letter of credit or other legal arrangement, or the unexpended or unobligated portion thereof, shall be refunded to the Applicant or terminated.

Sec. 21.5-6. - Performance guarantee.

(a) No permits shall be issued unless the applicant furnishes a performance guarantee, in accordance with the current county security policy. This is to ensure that action can be taken by the county, at the applicant's expense, should the applicant fail, after proper notice and within the time specified, to initiate or maintain those measures identified in the approved stormwater management design plan. If the county takes such action upon such failure by the applicant, the county shall collect from the applicant the difference should the amount of reasonable cost of such action exceed the amount of the security held.

(b) A certified estimate of costs by the design engineer or land surveyor shall be used to verify costs for the purpose of determining the amount of the performance guarantee required by this section.

(c) The performance guarantee furnished pursuant to this section, or the unexpended or unobligated portion thereof, shall be returned to the applicant within sixty (60) days of the final acceptance of completion of the stormwater management facility by the program administrator. Final acceptance shall be defined as the time at which all clearing and grading on the land development site for roads, lots, and other ancillary activities such as recreational or institutional uses, as defined by the preliminary subdivision, construction, or site plan, on land which drains to the stormwater management facility has been completed and stabilized, and construction certification and as-built plans have been received.

(Ord. 003-12, 3-18-03)

240 Performance Bonds

A. Prior to the issuance of any land disturbing permit, the owner or permittee shall execute and file with the director an *VSMP Authority Erosion and Sediment Control and Stormwater Management Performance Agreement* and cash escrow or irrevocable letter of credit (or other form of a performance bond as approved by the VSMP Authority attorney) in an amount determined in accordance with the *VSMP Authority Bond Estimate Worksheet* which shall be equal to the approximate total cost of providing erosion and sediment control and stormwater quality and quantity improvements as required by this ordinance and shown on the approved plans.

B. The *VSMP Authority Erosion and Sediment Control and Stormwater Management Performance Agreement* and performance bond is to ensure that measures could be taken by the VSMP Authority at the applicant's expense should he fail, after proper notice as outlined in **Section 225.C**, within the time specified to initiate or maintain appropriate actions which may be required of him by the **permit** conditions as a result of his *land-disturbing* activity. If the VSMP Authority takes such action upon such failure by the applicant, the *VSMP* authority may collect from the applicant for the difference should the amount of the reasonable cost of such action exceed the amount of the security held.

C. Upon successful completion of the land disturbing activity, to include submittal of the construction as-built drawings of permanent stormwater management facilities described in **Section 165** and prior to termination of the VSMP Permit, the owner or permittee must provide written notification to the VSMP Authority. Upon verification of adequate stabilization of land disturbing activity in the project or any section thereof, the director shall reduce, return, or terminate the required bond, cash escrow or irrevocable letter of credit to the owner, as the case may be, within 60 days.

D. If the applicant/owner fails to comply with the approved SWPPP as documented through the site inspections described in **Section210**, and after proper notification, the director may determine that the performance bond or escrow may be used to execute the plan.

Reference: §603.8(A); 4VAC50-60-104.D

(a) No permits shall be issued unless the applicant furnishes a performance guarantee, in accordance with the current **[Locality]** security policy. This is to ensure that action can be taken by the **[Locality]**, at the applicant's expense, should the applicant fail, after proper notice and within the time specified, to initiate or maintain those measures identified in the approved stormwater management design plan. If the **[Locality]** takes such action upon such failure by the applicant, the **[Locality]** shall collect from the applicant the difference should the amount of reasonable cost of such action exceed the amount of the security held.

(b) A certified estimate of costs by the design engineer or land surveyor shall be used to verify costs for the purpose of determining the amount of the performance guarantee required by this section.

(c) The performance guarantee furnished pursuant to this section, or the unexpended or unobligated portion thereof, shall be returned to the applicant within sixty (60) days of the final acceptance of completion of the stormwater management facility by the program administrator. Final acceptance shall be defined as the time at which all clearing and grading on the land development site for roads, lots, and other ancillary activities such as recreational or institutional uses, as defined by the preliminary subdivision, construction, or site plan, on land which drains to the stormwater management facility has been completed and stabilized, and construction certification and as-built plans have been received.

V. Adoption, Amendments, and Repeal:

This guidance document shall remain in effect until rescinded, amended or superseded.

_____ 12/13/2012

David A. Johnson Date

Director, Virginia Department of Conservation and Recreation

ATTACHMENT 2.A.2

GWRC Staffing Calculator

City of Fredericksburg

Program	Current Scenario: Current Staff Level	Current SWM and E&S Program Annual Personnel Budget	Estimated Cumulative Cost Over 12 yrs (With Avg. Salary Increase)	Moderate Level of COLA Increase: Staff Required Under Medium Growth Scenario	Projected Annual Personnel Budget	Difference in Annual Personnel Costs (Current vs. Medium)	Estimated Cumulative Cost Over 12 yrs (With Avg. Salary Increase)	Difference In Personnel Costs Over 12 yrs.	High Level of Annual COLA Increases: Staff Required Under High Growth Scenario	Projected Annual Personnel Budget	Difference in Annual Personnel Costs (Current vs. High)	Estimate Cumulative Cost Over 12 yrs (With Average Salary Increase)	Difference In Personnel Costs Over 12 yrs.
Director of Building & Development	1	$ 10,646	$ 127,748	1	$ 10,805.35	$ 160	$ 131,609	$ 3,861	1	$ 10,965.03	$ 319	$ 135,528	$ 7,780
Site Development Engineer	1	$ 33,661	$ 403,933	1	$ 34,165.99	$ 505	$ 416,142	$ 12,209	1	$ 34,670.91	$ 1,010	$ 428,532	$ 24,600
Erosion Sediment Control Inspector	1	$ 51,866	$ 622,391	1	$ 52,643.91	$ 778	$ 641,203	$ 18,812	1	$ 53,421.90	$ 1,556	$ 660,295	$ 37,904
Laborer I	1	$ 33,873	$ 406,479	1	$ 34,381.35	$ 508	$ 418,765	$ 12,286	1	$ 34,889.45	$ 1,016	$ 431,234	$ 24,755
Laborer II	1	$ 36,255	$ 435,059	1	$ 36,798.72	$ 544	$ 448,208	$ 13,150	1	$ 37,342.55	$ 1,088	$ 461,554	$ 26,495
Permit Clerk	1	$ 13,790	$ 165,479	1	$ 13,996.73	$ 207	$ 170,480	$ 5,002	1	$ 14,203.58	$ 414	$ 175,556	$ 10,078
SWM Program Administrator	1	$ 16,831	$ 201,966	0	$ 17,083.00	$ 252	$ 208,071	$ 6,104	0	$ 17,335.45	$ 505	$ 214,266	$ 12,300
MS4 Program Administrator	1	$ 16,831	$ 201,966	0	$ 17,083.00	$ 252	$ 208,071	$ 6,104	0	$ 17,335.45	$ 505	$ 214,266	$ 12,300
MS4 Program Assistant Public Works Director	1	$ 8,361	$ 100,326	0	$ 8,485.91	$ 125	$ 103,358	$ 3,032	0	$ 8,611.32	$ 251	$ 106,436	$ 6,110
E&S Program Administrator	1	$ 47,125.51	$ 565,506	0	$ 47,832.39	$ 707	$ 582,598	$ 17,092	0	$ 48,539.27	$ 1,414	$ 599,945	$ 34,439
Total	**10**	**$ 269,238**	**$ 3,230,853**	**6**	**$ 273,276**	**$ 4,039**	**$ 3,328,506**	**$ 97,653**	**6**	**$ 277,315**	**$ 8,077**	**$ 3,427,612**	**$ 196,759**

Assumptions

Staff Positions and Salaries	Director of Building & Development	Site Development Engineer	Erosion Sediment Control Inspector	Laborer I	Laborer II	Permit Clerk	SWM Program Administrator	MS4 Program Administrator	MS4 Program Assistant Public Works Director	E&S Program Administrator	0	0	0
Median Salary or Actual Salary	$ 92,571	$ 58,541	$ 56,376	$ 29,455	$ 31,526	$ 23,982	$ 58,541	$ 58,541	$ 72,700	$ 58,541			
Fringe	$ 13,886	$ 8,781	$ 8,456	$ 4,418	$ 4,729	$ 3,597	$ 8,781	$ 8,781	$ 10,905	$ 8,781	$ -	$ -	$ -
Indirect	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
% of Time Dedicated to SW Program	10%	50%	80%	100%	100%	50%	25%	25%	10%	70%	0%	0%	0%
Total Personnel Cost (w/Fringe & Indirect)	$ 10,646	$ 33,661	$ 51,866	$ 33,873	$ 36,255	$ 13,790	$ 16,831	$ 16,831	$ 8,361	$ 47,126	$ -	$ -	$ -

Fringe Rate	15%
Indirect Rate	0%

Staffing Scenarios Dependent on COLAs

Moderate Level of Annual COLA Increases	1.5%
High Level of Annual COLA Increases	3.0%

Historic DATA Comparison

Staffing	2006	2012	Change
	6	4	-2
			0
			0
Total	6	4	-2

Permits & Inspections	2005	2011	Change	% Change
Construction Inspections	7779	6,960	-819	-12%
Construction Plan Review	1670	955	-715	-75%
Walk-In Reviews	178	204	26	13%
Site Inspections	3080	1,049	-2031	-194%
E&S Bi-Weekly Maintenance Inspections		744	744	100%
Site & Subdivision Plan Reviews	71	16	-55	-344%
Plats Reviewed		18	18	100%
Lot Grading Plans Reviewed	287	109	-178	-163%
Constructin Permits Issued	3528	1,633	-1895	-116%

GWRC Staffing Calculator

Caroline County

Program	Current Scenario			Moderate Level of COLA Increase					High Level of Annual COLA increases				
	Current Staff Level	Current SWM and E&S Program Annual Personnel Budget	Estimated Cumulative Cost Over 12 yrs (With Avg. Salary Increase)	Staff Required Under Medium Growth Scenario	Projected Annual Personnel Budget	Difference in Annual Personnel Costs (Current vs. Medium)	Estimated Cumulative Cost Over 12 yrs (With Avg. Salary Increase)	Difference in Personnel Costs Over 12 yrs.	Staff Required Under High Growth Scenario	Projected Annual Personnel Budget	Difference in Annual Personnel Costs (Current vs. High)	Estimate Cumulative Cost Over 12 yrs (With Average Salary Increase)	Difference in Personnel Costs Over 12 yrs.
Director of Planning	1	$ 5,120	$ 61,440	1	$ 5,196.80	$ 77	$ 63,297	$ 1,857	1	$ 5,273.60	$ 154	$ 65,182	$ 3,742
Administrative	1	$ 10,752	$ 129,024	1	$ 10,913.28	$ 161	$ 132,924	$ 3,900	1	$ 11,074.56	$ 323	$ 136,882	$ 7,858
Environmental Planner	1	$ 70,400	$ 844,800	1	$ 71,456.00	$ 1,056	$ 870,334	$ 25,534	1	$ 72,512.00	$ 2,112	$ 896,248	$ 51,448
County Attorney	1	$ 6,400	$ 76,800	1	$ 6,496.00	$ 96	$ 79,121	$ 2,321	1	$ 6,592.00	$ 192	$ 81,477	$ 4,677
Total	**4**	**$ 92,672**	**$ 1,112,064**	**4**	**$ 94,062**	**$ 1,390**	**$ 1,145,676**	**$ 33,612**	**4**	**$ 95,452**	**$ 2,780**	**$ 1,179,789**	**$ 67,725**

Assumptions

Staff Positions and Salaries	Director of Planning	Administrative	Environmental Planner	County Attorney			0	0	0	0	0		
Median Salary or Actual Salary	$ 80,000	$ 28,000	$ 55,000	$ 5,000	$ -	$ -	$ -	$ 1					
Fringe	$ 22,400	$ 7,840	$ 15,400	$ 1,400	$ -	$ -	$ -	$ 0	$ -	$ -	$ -	$ -	$ -
Indirect	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
% of Time Dedicated to SW Program	5%	30%	100%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Personnel Cost (w/Fringe & Indirect)	$ 5,120	$ 10,752	$ 70,400	$ 6,400	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Fringe Rate	28%
Indirect Rate	0%

Staffing Scenarios Dependent on COLAs

Moderate Level of Annual COLA Increases	1.50%
High Level of Annual COLA Increases	3.00%

Historic DATA Comparison

Staffing	2008	2012	Change
Director	1	1	0
Environmental Planner	1	1	0
Environmental Inspector	2	0	-2
Total	4	2	-2

Permits & Inspections	2008	2011	Change	% Change
Projects	173	72	-101	-140%
Inspections*	4325	1800	-2525	-140%

GWRC Staffing Calculator

King George County

	Current Scenario			Moderate Level of COLA Increase					High Level of Annual COLA Increases				
Program	Current Staff Level	Current SWM and E&S Program Annual Personnel Budget	Estimated Cumulative Cost Over 12 yrs (With Avg. Salary Increase)	Staff Required Under Medium Growth Scenario	Projected Annual Personnel Budget	Difference in Annual Personnel Costs (Current vs. Medium)	Estimated Cumulative Cost Over 12 yrs (With Avg. Salary Increase)	Difference in Personnel Costs Over 12 yrs.	Staff Required Under High Growth Scenario	Projected Annual Personnel Budget	Difference in Annual Personnel Costs (Current vs. High)	Estimate Cumulative Cost Over 12 yrs (With Average Salary Increase)	Difference in Personnel Costs Over 12 yrs.
Department Director	1	$ 30,725	$ 368,704	1	$ 31,186.20	$ 461	$ 379,848	$ 11,144	1	$ 31,647.08	$ 922	$ 391,158	$ 22,454
Zoning Enforcement Officer/Planner	1	$ 42,899	$ 514,793	1	$ 43,542.95	$ 643	$ 530,353	$ 15,560	1	$ 44,186.44	$ 1,287	$ 546,144	$ 31,351
Permit Technician	2	$ 79,083	$ 948,996	1	$ 80,269.25	$ 1,186	$ 977,679	$ 28,683	1	$ 81,455.49	$ 2,372	$ 1,006,790	$ 57,794
County Attorney	1	$ 4,050	$ 48,600	1	$ 4,110.75	$ 61	$ 50,069	$ 1,469	1	$ 4,171.50	$ 122	$ 51,560	$ 2,960
Total	5	$ 156,758	$ 1,881,093	4	$ 159,109	$ 2,351	$ 1,937,949	$ 56,856	4	$ 161,461	$ 4,703	$ 1,995,652	$ 114,559

Assumptions

Staff Positions and Salaries	Department Director	Zoning Enforcement Officer/Planner	Permit Technician	County Attorney			0	0	0	0	0		
Median Salary or Actual Salary	$ 91,038	$ 36,317	$ 29,290	$ 120,000	$ -	$ -	$ -	$ 1					
Fringe	$ 22,760	$ 9,079	$ 7,323	$ 30,000	$ -	$ -	$ -	$ 0	$ -	$ -	$ -	$ -	$ -
Indirect	$ 39,829	$ 15,889	$ 12,814	$ 52,500	$ -	$ -	$ -	$ 0	$ -	$ -	$ -	$ -	$ -
% of Time Dedicated to SW Program	20%	70%	80%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Personnel Cost (w/Fringe & Indirect)	$ 30,725	$ 42,899	$ 39,542	$ 4,050	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Fringe Rate	25%
Indirect Rate	35%

Staffing Scenarios Dependent on COLAs

Moderate Level of Annual COLA Increases	1.50%
High Level of Annual COLA Increases	3.00%

Historic DATA Comparison

Staffing	2008	2012	Change
Department Director	1	1	0
Zoning Enforcement Officer/Planner	1	1	0
Permit Technician	1	2	1
County Attorney	0	1	1
Total	3	5	2

Permits & Inspections	2006	2011	Change	% Change
Plan/Permit Reviews	296	68	-228	-335%
Inspections	3552	816	-2736	-335%
E&S Plan Reviews	12	7	-5	-71%
Inspections*	288	168	-120	-71%

GWRC Staffing Calculator

Spotsylvania County

Program	Current Scenario			Moderate Level of COLA Increase					High Level of Annual COLA Increases				
	Current Staff Level	Current SWM and E&S Program Annual Personnel Budget	Estimated Cumulative Cost Over 12 yrs (With Avg. Salary Increase)	Staff Required Under Medium Growth Scenario	Projected Annual Personnel Budget	Difference in Annual Personnel Costs (Current vs. Medium)	Estimated Cumulative Cost Over 12 yrs (With Avg. Salary Increase)	Difference in Personnel Costs Over 12 yrs.	Staff Required Under High Growth Scenario	Projected Annual Personnel Budget	Difference in Annual Personnel Costs (Current vs. High)	Estimate Cumulative Cost Over 12 yrs (With Average Salary Increase)	Difference in Personnel Costs Over 12 yrs.
Street, Richard (Stormwater ad E&S Program Manager)	1	$ 73,655	$ 883,865	0	$ 74,760.23	$ 1,105	$ 910,580	$ 26,715	0	$ 75,865.06	$ 2,210	$ 937,692	$ 53,827
Pennington, Craig (Plan Reviewer)	1	$ 13,763	$ 165,154	0	$ 13,969.28	$ 206	$ 170,146	$ 4,992	0	$ 14,175.73	$ 413	$ 175,212	$ 10,058
Euson, John (Erosion Inspector)	1	$ 15,094	$ 181,130	0	$ 15,320.58	$ 226	$ 186,605	$ 5,475	0	$ 15,547.00	$ 453	$ 192,161	$ 11,031
Slingerland, Dena (Code Enforcement Technician)	1	$ 7,400	$ 88,801	0	$ 7,511.12	$ 111	$ 91,485	$ 2,684	0	$ 7,622.12	$ 222	$ 94,209	$ 5,408
Baez, Pat (Code Enforcement Office - Technician)	1	$ 7,781	$ 93,366	0	$ 7,897.21	$ 117	$ 96,188	$ 2,822	0	$ 8,013.92	$ 233	$ 99,052	$ 5,686
Tignor, Troy (Director, Code Enforcement)	1	$ 21,958	$ 263,500	0	$ 22,287.67	$ 329	$ 271,464	$ 7,964	0	$ 22,617.05	$ 659	$ 279,547	$ 16,047
		$ -	$ -	0	$ -	$ -	$ -	$ -	0	$ -	$ -	$ -	$ -
		$ -	$ -	0	$ -	$ -	$ -	$ -	0	$ -	$ -	$ -	$ -
Source: E-mail from Rick Roberson, 2/22/13, to		$ -	$ -	0	$ -	$ -	$ -	$ -	0	$ -	$ -	$ -	$ -
byrnes@gwregion.org		$ -	$ -	0	$ -	$ -	$ -	$ -	0	$ -	$ -	$ -	$ -
cc: Richard Street and Troy Tignor		$ -	$ -	0	$ -	$ -	$ -	$ -	0	$ -	$ -	$ -	$ -
		$ -	$ -	0	$ -	$ -	$ -	$ -	0	$ -	$ -	$ -	$ -
		$ -	$ -	0	$ -	$ -	$ -	$ -	0	$ -	$ -	$ -	$ -
		$ -	$ -	0	$ -	$ -	$ -	$ -	0	$ -	$ -	$ -	$ -
		$ -	$ -	0	$ -	$ -	$ -	$ -	0	$ -	$ -	$ -	$ -
Total	**6**	**$ 139,651**	**$ 1,675,816**	**0**	**$ 141,746**	**$ 2,095**	**$ 1,726,467**	**$ 50,652**	**0**	**$143,840.87**	**$ 4,190**	**$ 1,777,873**	**$ 102,057**

Assumptions

Staff Positions and Salaries	Program Mgr	Plan Reviewer	Erosion Inspector	Slingerland, Dena (Code Enforcement Technician)	Baez, Pat (Code Enforcement Office - Technician)	Tignor, Troy (Director, Code Enforcement)	0	0	Source: E-mail from Rick Roberson, 2/22/13, to byrnes@gwregion.org	0	cc: Richard Street and Troy Tignor		
Median Salary or Actual Salary	$ 73,840	$ 41,392	$ 40,352	$ 44,512	$ 46,800	$ 105,664	$ -						
Fringe	$ 24,367	$ 13,659	$ 13,316	$ 14,689	$ 15,444	$ 34,869	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Indirect	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
% of Time Dedicated to SW Program	75%	25%	28%	13%	13%	16%	0%	0%	0%	0%	0%	0%	0%
Total Personnel Cost (w/Fringe & Indirect)	$ 73,655	$ 13,763	$ 15,094	$ 7,400	$ 7,781	$ 21,958	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Fringe Rate	33%
Indirect Rate	0%

Staffing Scenarios Dependent on COLAs

Moderate Level of Annual COLA Increases	1.50%
High Level of Annual COLA Increases	3.00%

Historic DATA Comparison

Staffing	2008	2012	Change
	0	0	0
	0	0	0
	0	0	0
Total	0	0	0

Permits & Inspections	2006	2011	Change	% Change
Permits	11	20	9	45%
E&S Plan Reviews	0	227	227	100%

GWRC Staffing Calculator

Stafford County

	Current Scenario			Moderate Level of COLA Increase					High Level of Annual COLA Increases				
Program	Current Staff Level	Current SWM and E&S Program Annual Personnel Budget	Estimated Cumulative Cost Over 12 yrs (With Avg. Salary Increase)	Staff Required Under Medium Growth Scenario	Projected Annual Personnel Budget	Difference in Annual Personnel Costs (Current vs. Medium)	Estimated Cumulative Cost Over 12 yrs (With Avg. Salary Increase)	Difference in Personnel Costs Over 12 yrs.	Staff Required Under High Growth Scenario	Projected Annual Personnel Budget	Difference in Annual Personnel Costs (Current vs. High)	Estimate Cumulative Cost Over 12 yrs (With Average Salary Increase)	Difference in Personnel Costs Over 12 yrs.
Director of Public Works	1	$ 8,010	$ 96,114	1	$ 8,130	$ 120	$ 99,019	$ 2,905	1	$ 8,249.79	$ 240	$ 101,967	$ 5,853
Asst. Director of Public Works	1	$ 31,195	$ 374,340	1	$ 31,663	$ 468	$ 385,654	$ 11,314	1	$ 32,130.85	$ 936	$ 397,137	$ 22,797
Environmental Planner	1	$ 40,443	$ 485,310	1	$ 41,049	$ 607	$ 499,978	$ 14,668	1	$ 41,655.78	$ 1,213	$ 514,865	$ 29,555
Erosion and Sediment Control Inspector II	2	$ 115,232	$ 1,382,778	2	$ 116,960	$ 1,728	$ 1,424,572	$ 41,794	2	$ 118,688.45	$ 3,457	$ 1,466,989	$ 84,211
Erosion and Sediment Control Inspector II	1	$ 37,970	$ 455,640	1	$ 38,540	$ 570	$ 469,412	$ 13,772	1	$ 39,109.10	$ 1,139	$ 483,388	$ 27,748
Erosion and Sediment Control Inspector II	1	$ 51,594	$ 619,133	1	$ 52,368	$ 774	$ 637,846	$ 18,713	1	$ 53,142.23	$ 1,548	$ 656,838	$ 37,705
Erosion and Sediment Control Inspector II	2	$ 100,312	$ 1,203,744	2	$ 101,817	$ 1,505	$ 1,240,127	$ 36,383	2	$ 103,321.36	$ 3,009	$ 1,277,052	$ 73,308
Erosion and Sediment Control Inspector II	1	$ 52,121	$ 625,450	1	$ 52,903	$ 782	$ 644,354	$ 18,904	1	$ 53,684.42	$ 1,564	$ 663,539	$ 38,090
Zoning Technician - Environmental	1	$ 5,978	$ 71,737	1	$ 6,068	$ 90	$ 73,905	$ 2,168	1	$ 6,157.44	$ 179	$ 76,106	$ 4,369
Senior Administrative Specialist	1	$ 32,815	$ 393,780	1	$ 33,307	$ 492	$ 405,682	$ 11,902	1	$ 33,799.45	$ 984	$ 417,761	$ 23,981
Senior Engineer	1	$ 62,429	$ 749,148	1	$ 63,365	$ 936	$ 771,791	$ 22,643	1	$ 64,301.87	$ 1,873	$ 794,771	$ 45,623
Civil Engineer	1	$ 49,454	$ 593,448	1	$ 50,196	$ 742	$ 611,385	$ 17,937	1	$ 50,937.62	$ 1,484	$ 629,589	$ 36,141
SWM Engineer	1	$ 46,549	$ 558,582	1	$ 47,247	$ 698	$ 575,465	$ 16,883	1	$ 47,944.96	$ 1,396	$ 592,600	$ 34,018
Environmental Planner	2	$ 12,207	$ 146,480	2	$ 12,390	$ 183	$ 150,908	$ 4,427	2	$ 12,572.90	$ 366	$ 155,401	$ 8,921
		$ -	$ -	0	$ -	$ -	$ -	$ -	0	$ -	$ -	$ -	$ -
Total	17	$ 646,307	$ 7,755,684	17	$ 656,002	$ 9,695	$ 7,990,100	$ 234,416	17	$ 665,696	$ 19,389	$ 8,228,005	$ 472,321

Assumptions

Staff Positions and Salaries	Director of Public Works	Asst. Director of Public Works	Environmental Planner	Erosion and Sediment Control Inspector II	Erosion and Sediment Control Inspector II	Erosion and Sediment Control Inspector II	Erosion and Sediment Control Inspector II	Erosion and Sediment Control Inspector II	Zoning Technician - Environmental	Senior Administrative Specialist	Senior Engineer	Civil Engineer	SWM Engineer	Environmental Planner
Median Salary or Actual Salary	$ 160,190	$ 124,780	$ 80,885	$ 76,821	$ 75,940	$ 64,493	$ 62,695	$ 65,151	$ 59,781	$ 65,630	$ 124,858	$ 98,908	$ 93,097	$ 81,378
Fringe	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Indirect	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
% of Time Dedicated to SW Program	5%	25%	50%	75%	50%	80%	80%	80%	10%	50%	50%	50%	50%	7.50%
Total Personnel Cost (w/Fringe & Indirect)	$ 8,010	$ 31,195	$ 40,443	$ 57,616	$ 37,970	$ 51,594	$ 50,156	$ 52,121	$ 5,978	$ 32,815	$ 62,429	$ 49,454	$ 46,549	$ 6,103

Recent Salary Increase	
Indirect Rate	

Staffing Scenarios Dependent on COLAs

Moderate Level of Annual COLA Increases	1.50%
High Level of Annual COLA Increases	3.00%

Historic DATA Comparison

Staffing	2008	2012	Change	2012 FTEs Based on % Working On SW - E&S
Director of Public Works	1	1	0	0.05
of Public Works (Formerly Env. Program Manager)	1	1	0	0.25
Environmental Planner	1	1	0	0.50
Chief Inspector E&S Program	1			0.00
Erosion and Sediment Control Inspector II	7	7	0	5.25
Zoning Technician - Environmental	1	1	0	0.10
Senior Administrative Specialist	1	1	0	0.50
Senior Engineer		1	1	0.50
Civil Engineer		1	1	0.50
Development Plan Review (GKY Assoc.)	2			0.00
Lot Grading Plan Reviewer	1			0.00
SWM Engineer		1	1	0.50
Environmental Planner	2	2	0	0.15
Total	18	17	-1	8.3

Permits & Inspections	2007	2011	Change	% Change
Plan Reviews	757	493	-264	-54%
E&S Plan Reviews	443	106	-337	-318%
Inspections (Combined)	13581	6781	-6800	-100%

GWRC Staffing Calculator

George Washington Regional Commission

	Current Scenario			Moderate Level of COLA Increase					High Level of Annual COLA Increases				
Program	Current Staff Level	Current SWM and E&S Program Annual Personnel Budget	Estimated Cumulative Cost Over 12 yrs (With Avg. Salary Increase)	Staff Required Under Medium Growth Scenario	Projected Annual Personnel Budget	Difference in Annual Personnel Costs (Current vs. Medium)	Estimated Cumulative Cost Over 12 yrs (With Avg. Salary Increase)	Difference in Personnel Costs Over 12 yrs.	Staff Required Under High Growth Scenario	Projected Annual Personnel Budget	Difference in Annual Personnel Costs (Current vs. High)	Estimate Cumulative Cost Over 12 yrs (With Average Salary Increase)	Difference in Personnel Costs Over 12 yrs.
Director of Regional Planning	1	$ 29,848	$ 358,174	1	$ 30,295.57	$ 448	$ 369,000	$ 10,826	1	$ 30,743.29	$ 895	$ 379,987	$ 21,813
		$ -	$ -	0	$ -	$ -	$ -	$ -	0	$ -	$ -	$ -	$ -
		$ -	$ -	0	$ -	$ -	$ -	$ -	0	$ -	$ -	$ -	$ -
		$ -	$ -	0	$ -	$ -	$ -	$ -	0	$ -	$ -	$ -	$ -
		$ -	$ -	0	$ -	$ -	$ -	$ -	0	$ -	$ -	$ -	$ -
		$ -	$ -	0	$ -	$ -	$ -	$ -	0	$ -	$ -	$ -	$ -
		$ -	$ -	0	$ -	$ -	$ -	$ -	0	$ -	$ -	$ -	$ -
		$ -	$ -	0	$ -	$ -	$ -	$ -	0	$ -	$ -	$ -	$ -
		$ -	$ -	0	$ -	$ -	$ -	$ -	0	$ -	$ -	$ -	$ -
		$ -	$ -	0	$ -	$ -	$ -	$ -	0	$ -	$ -	$ -	$ -
		$ -	$ -	0	$ -	$ -	$ -	$ -	0	$ -	$ -	$ -	$ -
		$ -	$ -	0	$ -	$ -	$ -	$ -	0	$ -	$ -	$ -	$ -
		$ -	$ -	0	$ -	$ -	$ -	$ -	0	$ -	$ -	$ -	$ -
		$ -	$ -	0	$ -	$ -	$ -	$ -	0	$ -	$ -	$ -	$ -
Total	**1**	**$ 29,848**	**$ 358,174**	**1**	**$ 30,296**	**$ 448**	**$ 369,000**	**$ 10,826**	**1**	**$ 30,743**	**$ 895**	**$ 379,987**	**$ 21,813**

Assumptions

Staff Positions and Salaries		Director of Regional Planning					0	0	0	0	0		
Median Salary or Actual Salary		$ 86,840		$ -	$ -	$ -	$ -	$ 1					
Fringe	$ -	$ 55,161	$ -	$ -	$ -	$ -	$ -	$ 1	$ -	$ -	$ -	$ -	$ -
Indirect	$ -	$ 56,985	$ -	$ -	$ -	$ -	$ -	$ 1	$ -	$ -	$ -	$ -	$ -
% of Time Dedicated to SW Program	10%	15%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Personnel Cost (w/Fringe & Indirect)	$ -	$ 29,848	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Fringe Rate	63.52%
Indirect Rate	40.13%

Staffing Scenarios Dependent on COLAs	
Moderate Level of Annual COLA Increases	1.50%
High Level of Annual COLA Increases	3.00%

Historic DATA Comparison

Staffing	2006	2012	Change
Director of Regional Planning	1	1	0
			0
Total	1	1	0

GWRC Staffing Calculator

Regional Summary

	Current Scenario			Moderate Level of COLA Increase					High Leve of Annual COLA Increases				
Jurisdiciton	Current Staff Level	Current SWM and E&S Program Annual Personnel Budget	Estimated Cumulative Cost Over 12 yrs (With Avg. Salary Increase)	Staff Required Under Medium Growth Scenario	Projected Annual Personnel Budget	Difference in Annual Personnel Costs (Current vs. Medium)	Estimated Cumulative Cost Over 12 yrs (With Avg. Salary Increase)	Difference In Personnel Costs Over 12 yrs.	Staff Required Under High Growth Scenario	Projected Annual Personnel Budget	Difference in Annual Personnel Costs (Current vs. High)	Estimate Cumulative Cost Over 12 yrs (With Average Salary Increase)	Difference In Personnel Costs Over 12 yrs.
George Washington Regional Commission	1	$ 29,848	$ 358,174	1	$ 30,296	$ 448	$ 369,000	$ 10,826	1	$ 30,743	$ 895	$ 379,987	$ 21,813
Caroline County	4	$ 92,672	$ 1,112,064	4	$ 94,062	$ 1,390	$ 1,145,676	$ 33,612	4	$ 95,452	$ 2,780	$ 1,179,789	$ 67,725
City of Fredericksburg	10	$ 269,238	$ 3,230,853	6	$ 273,276	$ 4,039	$ 3,328,506	$ 97,653	6	$ 277,315	$ 8,077	$ 3,427,612	$ 196,759
King George County	5	$ 156,758	$ 1,881,093	4	$ 159,109	$ 2,351	$ 1,937,949	$ 56,856	4	$ 161,461	$ 4,703	$ 1,995,652	$ 114,559
Spotsylvania County	6	$ 139,651	$ 1,675,816	0	$ 141,746	$ 2,095	$ 1,726,467	$ 50,652	0	$ 143,841	$ 4,190	$ 1,777,873	$ 102,057
Stafford County	17	$ 646,307	$ 7,755,684	17	$ 656,002	$ 9,695	$ 7,990,100	$ 234,416	17	$ 665,696	$ 19,389	$ 8,228,005	$ 472,321
Totals	**42**	**$ 1,304,626**	**$ 15,655,511**	**31**	**$ 1,324,195**	**$ 19,569**	**$ 16,128,698**	**$ 473,188**	**31**	**$ 1,343,765**	**$ 39,139**	**$ 16,608,931**	**$ 953,421**

ATTACHMENT 2.B.1

Stafford County – Virginia Model Stormwater Ordinance Crosswalk

Stafford County Ordinance	Virginia Model Ordinance	Comments
DEFINITIONS -**"Adequate channel"** means a natural or manmade channel, which is capable of conveying runoff from a ten-year storm without overtopping its banks and from a two-year storm without eroding. A pipe or storm sewer system is adequate if runoff from a ten-year storm is contained within the system.	**DEFINITIONS**	
-**"Applicant"** means any person submitting a stormwater management plan for approval. -**"Applicant"** means any person submitting an erosion and sediment control plan for approval or requesting issuance of a permit, when required, authorizing land-disturbing activities to commence.	-"**Applicant**" means any person submitting an application for a permit or requesting issuance of a permit under this Ordinance.	
-**"As-built plan"** means a set of engineering or site drawings that adequately depict stormwater management facilities and stormwater drainage systems as they were actually constructed.		
-**"Best management practice (BMP)"** means a structural or nonstructural practice, which is designed to minimize the impacts of development on surface or groundwater systems.	-"**Best management practice**" or "**BMP**" means schedules of activities, prohibitions of practices, including both structural and nonstructural practices, maintenance procedures, and other management practices to prevent or reduce the pollution of surface waters and groundwater systems from the impacts of land-disturbing activities.	State model ordinance includes "prohibition of practices" and "management practices" – Stafford does not.
-**"Board"** means the Virginia Soil and Water Conservation Board		
"Clearing" means any activity, which removes the vegetative ground cover including, but not limited to, root mat removal, or topsoil stripping.		
-**"Channel"** means a natural stream or artificial		

watercourse with a definite bed and banks that conducts continuously or periodically flowing water.		
"Chesapeake Bay Preservation Area (CBPA)". All appropriate land in Stafford County pursuant to Part III of the Chesapeake Bay Preservation Area Designation and Management Regulations, VR 173-02-01, and Code of Virginia, § 10.1-2107. A Chesapeake Bay Preservation Area consists of a critical resource protection area and a land/resource management area.	**"Chesapeake Bay Preservation Act land-disturbing activity"** means a land-disturbing activity including clearing, grading, or excavation that results in a land disturbance equal or greater than 2,500 square feet and less than one acre in all areas of jurisdictions designated as subject to the regulations adopted pursuant to the Chesapeake Bay Preservation Act, Code of Virginia, § 10.1-2100, et seq. Required for localities within Tidewater Virginia.	Both Stafford and State essentially the same.
"Conservation easement". An area to remain undisturbed and/or remain in its natural state as may be required as a condition of plan approval.		
-"Conservation standards" or **"standards" (sec. 11-2)** means standards adopted by the county pursuant to this chapter.		Stafford Erosion and sediment control standards.
-"Construction phasing" or "staging of construction," as the term is used in this chapter, means a construction process to control erosion and sedimentation where only a specified portion of an entire construction site is disturbed at any one time for the construction of the required infrastructure within that portion, and no subsequent portion of the construction site is allowed to be disturbed until the previous portion of land has been stabilized. Construction phasing is not to be confused with the terms "phasing of development" or "construction sequencing."		
-"Development" means a tract of land developed or to be developed as a unit under single ownership or unified control that is to be used for any business or industrial purpose or is to contain	-"**Development**" means land disturbance and the resulting landform associated with the construction of residential, commercial, industrial, institutional, recreation,	State ordinance is more germane lands than Stafford ordinance and does address the conversion or clearing of

three (3) or more residential dwelling units.	transportation or utility facilities or structures or the clearing of land for non-agricultural or non-silvicultural purposes.	agricultural. Stafford has a minimum threshold of 3 residential units, or more. Stafford E&S ordinance is more precise in identifying "disturbances" of 10,000 sq. ft. or more for residential purposes.
-**"Erosion impact area"** means an area of land not associated with current land-disturbing activity but subject to persistent soil erosion resulting in the delivery of sediment onto neighboring properties or into state waters. This definition shall not apply to any lot or parcel of land of ten thousand (10,000) square feet or less used for residential purposes or to shorelines where the erosion results from wave action or other coastal processes.		
-**"Flocculents"** (also known as polymers or polyacrylamide (PAM)) means natural materials or a class of chemicals that cause colloidal (clay) particles to coagulate and settle out in detained stormwater runoff.		
-**"Flooding"** means a volume of water that is too great to be confined within the banks or walls of the stream, water body, or conveyance system, and that overflows onto adjacent lands, causing or threatening damage.		
-**"Floodplain"** means the floodplain districts defined in chapter 28 (zoning ordinance) of this Code as being areas subject to inundation by waters of the hundred-year flood.		
"Floodway": The channel of a river or other watercourse and the adjacent land areas which must be reserved in order to discharge a base flood without cumulatively increasing water surface		

elevation more than one foot at any point, as specified in the flood insurance study for Stafford County, Virginia. Such a flood, on the average, is likely to occur every one hundred (100) years.		
-**"Grading"** means any excavating or filling of earth material or any combination thereof, including the land in its excavated or filled conditions.		
-**"Grading permit"** means the written approval by the county to commence and complete grading and the associated sediment control and stormwater management devices in accordance with the approved plan and this chapter. This permit shall be valid for one year and may be renewed upon payment of the required fees		
-**"Hotspot"** means an area where the land use or activities are considered to generate runoff with concentrations of pollutants in excess of those typically found in stormwater.		
"**Impervious surface**". A surface composed of any material(s) which reduces or prevents absorption or percolation of water into the soil. Impervious surfaces include, but are not limited to roofs, buildings, streets, parking areas, and any concrete, asphalt, or compacted gravel surfaces.		
-**"Integrated management practice"** means low-impact development microscale and distributed management techniques used to maintain predevelopment site hydrology. Integrated management practices shall include bioretention facilities, dry wells, filter/buffer strips, grassed swales, rain barrels, cisterns, infiltration trenches and amended soils as specified in the low-impact development design manuals.		
-**"Land-disturbing activity"** means any land change which may result in soil erosion from water or wind and the movement of sediments into state	-"**Land disturbance**" or "**land-disturbing activity**" means a man-made change to the land surface that potentially changes its runoff	The base language of the Stafford ordinance includes erosion from "wind", the state

waters or onto lands in the commonwealth, including, but not limited to, clearing, grading, excavating, transporting and filling of land, except that the term shall not include: (1)Minor land-disturbing activities such as home gardens and individual home landscaping, repairs and maintenance work; (2)Individual service connections; (3)Installation, maintenance or repair of any underground public utility lines, when such activity occurs on an existing hard-surfaced road, street or sidewalk, provided the land-disturbing activity is confined to the area of the road, street or sidewalk which is hard-surfaced; electric, natural gas and telephone utility companies, interstate and intrastate natural gas pipeline companies and railroad companies shall file general erosion and sediment control specifications annually with the board for review and written comments.(4)Septic tank lines or drainage fields, unless included in an overall plan for land-disturbing activity relating to construction of the building to be served by the septic tank system; (5) Surface or deep mining; (6)Exploration or drilling for oil and gas, including the well site, roads, feeder lines and off-site disposal areas; (7) Tilling, planting or harvesting or agricultural, horticultural or forest crops or livestock feedlot operations, including engineering operations as follows: construction of terraces, terrace outlets, check dams, desilting basins, dikes, ponds, ditches, strip cropping, lister furrowing, contour cultivating, contour furrowing, land drainage and land irrigation; however, this exception shall not apply to harvesting of forest crops unless the area on which harvesting occurs is reforested artificially or naturally in accordance with the provisions of	characteristics including clearing, grading, or excavation except that the term shall not include those exemptions specified in Section 1-3 (c) of this Ordinance.	ordinance is much less specific. The Stafford ordinance includes 12 exceptions to the definition.

chapter 11 (section 10.1-1100) et seq., Code of Virginia (1950), as amended, or is converted to bona fide agricultural or improved pasture use as described in subsection B of ß 10.1-1163, Code of Virginia (1950), as amended; (8)Repairing or rebuilding of the tracks, right-of-way, bridges, communication facilities and other related structures and facilities of a railroad company; (9)Agricultural engineering operations including, but not limited to, the construction of terraces, terrace outlets, check dams, desilting basins, dikes, ponds not required to comply with the Dam Safety Act, article 2 of chapter 6 of title 10.1 of the Code of Virginia (1950), as amended, ditches, strip cropping, lister furrowing, contour cultivating, contour furrowing, land drainage and land irrigation; (10)Disturbed land areas of less than two thousand five hundred (2,500) square feet in size, providing land-disturbing activity is not for the development of a residential lot(s) in a subdivision or no special site conditions or site development plans warrant conservation treatment and no erosion is evident during development; (11)Installation of fence and sign posts or telephone and electric poles and other kinds of posts or poles; (12)Shore erosion control projects on tidal waters when the projects are approved by local wetlands boards, the marine resources commission or the U.S. Army Corps of Engineers; however, any associated land that is disturbed outside of this exempted area shall remain subject to this chapter		
-**"Land development"** or **"land development project"** means a manmade change to the land surface that potentially changes its runoff		

characteristics.		
-**"Linear development project"** means a land development project that is linear in nature such as, but not limited to, (i) the construction of electric and telephone utility lines and natural gas pipelines; (ii) construction of tracks, rights-of-way, bridges, communication facilities and other related structures of a railroad company; and (iii) highway construction projects.		
. -**"Local erosion and sediment control program"** or local control program means an outline of the various methods employed by Stafford County to regulate land-disturbing activities and thereby minimize erosion and sedimentation in compliance with the state program and may include such items as local ordinances, policies and guidelines, technical materials, inspection, enforcement and evaluation. Owner means the owner or owners of the freehold of the premises or lesser estate therein, a mortgagee or vendee in possession, assignee of rents, receiver, executor, trustee, lessee or other person, firm or corporation in control of a property.		
-**"Low-impact development"** means a hydrologically functional site design with pollution-prevention measures to reduce impacts and compensate for development impacts on hydrology and water quality. -**"Low-impact development design manuals"** refers to the Low-Impact Development Design Strategies: An Integrated Design Approach Manual and the Low-Impact Development Hydrologic Analysis Manual as incorporated by reference in this chapter.		No acknowledgement or definition of LID in the State ordinance.
-**"Maintenance agreement"** means a legally		

binding agreement between the landowner of a stormwater management structure and Stafford County outlining each party's responsibility towards the operation, maintenance and general upkeep of said structure.		
-"**Maintenance plan**" means a component of the stormwater management design plan describing the stormwater management structures at the land development project and identifying maintenance items that will be performed by the landowner to ensure proper functioning of said structures.		
-"**Nonpoint source pollution**" means pollution consisting of constituents such as sediment, nutrients, and organic and toxic substances from diffuse sources, such as runoff from urban land development and use.		
-"**Nonstructural stormwater practice**" means a stormwater runoff treatment technique which uses natural measures to reduce pollutant levels, does not require extensive construction efforts and/or promotes pollution reduction by eliminating the pollutant source.		
-"**Off-site stormwater management facility**" means a stormwater management facility located outside the subject property boundary described in the stormwater management design plan for the land development activity.		
-"**On-site stormwater management facility**" means a stormwater management facility located within the subject property boundary described in the stormwater management design plan for the land development activity.		
"**Open space land**". Any land which is provided or preserved for park or recreational purposes;		

conservation of land or other natural resources; historic or scenic purposes; assisting in the shaping of the character, direction and timing of community development; wetlands; or agricultural and forestal production.		
-**"Outfall** "means the location in a flow-path where stormwater leaves the site or enters the receiving stream.		
-**"Overcompensation"** means the extra water quantity or quality control provided at one site discharge point in order to allow another discharge point(s) to go uncontrolled.		
-**"Permit-issuing agency"** means the county department of code administration.		
	-"**Permit**" or "**VSMP Authority Permit**" means an approval to conduct a land-disturbing activity issued by the Administrator for the initiation of a land-disturbing activity, in accordance with this Ordinance, and which may only be issued after evidence of general permit coverage has been provided by the Department.	Grading permits are issued by Stafford, thus essentially the same.
-**"Permittee"** means the person to whom the permit authorizing land-disturbing activities is issued or the person who certifies that the approved erosion and sediment control plan will be followed.	-"**Permittee**" means the person to whom the VSMP Authority Permit is issued.	Same
-**"Person"** means any firm, association, organization, partnership, trust, company, or corporation, as well as an individual.	-"**Person**" means any individual, corporation, partnership, association, state, municipality, commission, or political subdivision of a state, governmental body, including federal, state, or local entity as applicable, any interstate body or any other legal entity.	State ordinance includes language that includes local, state and federal agencies – Stafford does not.

-**"Plan-approving authority"** means the county department of planning and zoning, which, as the designated agent for the board of supervisors, shall be responsible for determining the adequacy of the conservation plan submitted for land disturbing activities in accordance with this chapter.		
-**"Plan-review agency"** means the department of planning and zoning, which is responsible for evaluating the adequacy of a conservation plan submitted for land disturbing activities on a unit or units of land and which shall recommend approval or disapproval to the plan-approving authority.		
-**"Postdevelopment"** refers to the conditions that reasonably may be expected or anticipated to exist after completion of the land development activity on a specific site or tract of land. Predevelopment refers to the land condition that exists at the time that plans for the land development are submitted to the locality. Where phased development or plan approval occurs (preliminary grading, roads, and utilities, etc.), the existing land use at the time the first item is submitted shall establish predevelopment conditions.		
"Predevelopment" refers to the land condition that exists at the time that plans for the land development are submitted to the locality. Where phased development or plan approval occurs (preliminary grading, roads, and utilities, etc.), the existing land use at the time the first item is submitted shall establish predevelopment conditions.		
-**"Pretreatment"** means the techniques employed in a stormwater management plan to provide storage or filtering to help trap course materials before they enter the stormwater BMP.		

Pretreatment is required on some BMPs to help avoid costly maintenance. Program administrator means the county administrator or his designee.		
-**"Program administrator"** means the county administrator or his designee.		
-"**Redevelopment**" means the process of developing land that is or has been previously developed **(sec 28.25)** The removal and replacement, rehabilitation, or adaptive reuse of an existing structure(s) or building(s), or of land from which previous improvements have been removed. Replacement may include construction of residential, commercial, industrial, public, or other uses as well as provisions for streets, parks and other public works (facilities).		
"Regional stormwater management facility (regional facility)" means a facility or series of facilities designed to control stormwater runoff from a specific watershed and for one or more developments.		
-**"Renewal fee"** means the annual fee charged for a grading permit after the initial grading permit is obtained.		
-**"Responsible land disturber"** means an individual from the project or development team who will be in charge of and responsible for carrying out a land-disturbing activity covered by an approved plan or agreement in lieu of a plan, who (i) holds a responsible land disturber certificate of competence, (ii) holds a current certificate of competence from the Virginia Soil and Water Conservation Board in the areas of combined administration, program administration, inspection, or plan review, (iii) holds a current		

contractor certificate of competence for erosion and sediment control, or (iv) is licensed in Virginia as a professional engineer, architect, certified landscape architect or land surveyor pursuant to article 1 (sec. 54.1-400 et seq.) of chapter 4 of title 54.1 [Code of Virginia 1950].		
"Runoff" means that portion of precipitation that is discharged across the land surface or through conveyances to one or more waterways.		
-**"Stabilization"** means the physical act of installing, applying or planting vegetative or structural soil cover to an area of land to a stabilized condition. -**"Stabilized"** means the condition of an area of land that can be expected to withstand normal exposure to atmospheric conditions without incurring erosion and or sediment damage to it or to any abutting or adjacent land or water feature.		
-**"State waters** means all waters on the surface and under the ground wholly or partially within or bordering the commonwealth or within its jurisdiction.	-"**State waters**" means all water, on the surface and under the ground, wholly or partially within or bordering the Commonwealth or within its jurisdiction, including wetlands.	Same
-**"Stormwater drainage"** means the collection and conveyance of storm and other surface flows through the land development project in a manner to prevent flooding of structures and associated properties and erosion of channels. Stormwater drainage systems shall include stormwater conveyance channels, storm sewers and culverts.		
-**"Stormwater management"** means the collection, conveyance, storage, treatment, and disposal of stormwater runoff in a manner to prevent accelerated channel erosion, increased		

flood damage, and degradation of water quality.		
	-**"Virginia Stormwater Management Program"** or **"VSMP"** means a program approved by the State Board after September 13, 2011, that has been established by a locality to manage the quality and quantity of runoff resulting from land-disturbing activities and shall include such items as local ordinances, rules, permit requirements, annual standards and specifications, policies and guidelines, technical materials, and requirements for plan review, inspection, enforcement, where authorized in this article, and evaluation consistent with the requirements of this article and associated regulations.	
-**"Stormwater management concept plan"** means a generalized plan provided with the preliminary plan of subdivision describing how stormwater runoff through and from a land development project will be conveyed and controlled. -**"Stormwater management design plan"** means a set of drawings and supporting documents that comprises all of the information and specifications for the systems and structures that will be used to convey and control stormwater runoff in accordance with the requirements of this chapter.	-"**Stormwater management plan**" means a document(s) containing material describing methods for complying with the requirements of Section 1-6 of this Ordinance.	Stafford ordinance refers to both a concept and design plan – state ordinance refers to a "management" plan.
-**"Stormwater management design manuals"** refers to the Stafford County Stormwater Management Design Manual and the Virginia Stormwater Management Handbook as incorporated by reference in this chapter.		
"Stormwater management extended detention basin (extended detention basin)" means a		

stormwater management facility that temporarily impounds runoff and discharges it through a hydraulic outlet structure over a specified period of time to a downstream conveyance system for the purpose of water quality enhancement or stream channel erosion control. Since an extended detention facility impounds runoff only temporarily, it is normally dry during nonrainfall periods.		
-**"Stormwater management facility"** means a device that controls stormwater runoff and changes the characteristics of that runoff including, but not limited to, the quantity and quality, the period of release, or the velocity of flow.		
-**"Stormwater management filtering system"** means a stormwater treatment practice that utilizes an artificial media [medium] to filter out pollutants. Filtering systems shall include bioretention facilities and sand filters, as specified in the Virginia Stormwater Management Design Manuals.		
-**"Stormwater management infiltration facility"** means a stormwater management facility that temporarily impounds runoff and discharges it via infiltration through the surrounding soil. Infiltration facilities shall include infiltration basins, infiltration trenches, dry wells and porous pavement as specified in the stormwater management design manuals.		
-**"Stormwater management open channel system"** means a vegetated open channel designed to remove pollutants from stormwater runoff by filtration through grass and infiltration into the soil.		
-**"Stormwater management retention basin (retention basin)"** means a stormwater		

management facility that temporarily impounds runoff and discharges it through a hydraulic outlet structure to a downstream conveyance system, and also includes a permanent impoundment. Therefore, it is normally wet, even during nonrainfall periods.		
-**"Stormwater management wetland"** means an area intentionally designed and created to emulate the water quality improvement function of wetlands for the primary purpose of removing pollutants from stormwater.		
	"Stormwater Pollution Prevention Plan" or "SWPPP" means a document that is prepared in accordance with good engineering practices and that identifies potential sources of pollutants that may reasonably be expected to affect the quality of stormwater discharges from the construction site, and otherwise meets the requirements of this Ordinance. In addition the document shall identify and require the implementation of control measures, and shall include, but not be limited to the inclusion of, or the incorporation by reference of, an approved erosion and sediment control plan, an approved stormwater management plan, and a pollution prevention plan.	Stafford code does not specifically reference SWPPPs for construction activities.
-**"Subdivision"** means any division of a tract of land as set forth in section 22-4 of the Stafford County Code, provided, however, that if a new street is involved in a division into lots of ten (10) acres or more, all of the requirements of this chapter shall apply.	-"**Subdivision**" means the same as defined in Section [citation to local Ordinance] of [insert Locality name] Subdivision Ordinance.	Similar
	"Total maximum daily load" or "TMDL" means the sum of the individual wasteload allocations for point sources, load allocations	

	for nonpoint sources, natural background loading and a margin of safety. TMDLs can be expressed in terms of either mass per time, toxicity, or other appropriate measure. The TMDL process provides for point versus nonpoint source trade-offs.	
-**"Transporting"** means any moving of earth materials from one place to another place, other than such movement incidental to grading, when such movement results in the destruction of the vegetative ground cover either by tracking or the buildup of earth materials to the extent that erosion and sedimentation will occur.		
-**"Watershed"** means a defined land area drained by a river, stream or drainage way, or system of connecting rivers, streams or drainage ways such that all surface water within the area flows through a single outlet.		
Stormwater Permit Requitements: Exemptions **"Applicability." (sec21.5-1)** (2)The following activities shall be exempt from this chapter: a. Permitted surface or deep mining operations and projects, or oil and gas operations and projects conducted under the provisions of title 45.1, Code of Virginia. b. Tilling, planting, or harvesting of agricultural, horticultural, or forest crops. c. Linear development projects, provided that (i) less than one acre of land will be disturbed per outfall or watershed, (ii) there will be insignificant increases in peak flow rates, and (iii) there are no existing or anticipated flooding or erosion	**Stormwater Permit Requirements; Exemptions (sec 1-3)** **(a)** Except as provided herein, no person may engage in any land-disturbing activity until a VSMP authority permit has been issued by the Administrator in accordance with the provisions of this Ordinance. **(b)** A Chesapeake Bay Preservation Act Land-Disturbing Activity shall be subject to an erosion and sediment control plan consistent with the requirements of the Erosion and Sediment Control Ordinance, a stormwater management plan as outlined under Section 1¬6, the technical criteria and administrative requirements for land-disturbing activities outlined in Section 1-9, and the requirements	Stafford Ordinance provide exceptions if the applicant or property owner can provide supporting analysis that on-site stormwater management will increase flows in the main stream or the proposed development will not generate an "increase in the two-year and ten-year predevelopment peak discharge rates and the off-site receiving channel is adequate." Stafford also will provide an exception for use of off-site or a regional stormwater facility. State

problems downstream of the discharge points. d. Single-family detached residences separately built and not part of a subdivision, including additions or modifications to existing single-family detached residential structures, provided that all applicable requirements of section 28-62 (Chesapeake Bay preservation area overlay districts) of the Code are met. e. Structures considered ancillary to single-family detached and semidetached residences, duplexes, and townhouses, including, but not limited to, garages, decks, patios, and barns provided that all applicable requirements of section 28-62 (Chesapeake Bay preservation area overlay districts) of the Code are met. f. Land development projects that disturb less than two thousand five hundred (2,500) square feet of land. **Exceptions (sec 21.5-7)** **(a)** Exceptions to the provisions of this chapter may be granted by the program administrator, upon receipt of request for such exception in writing from the applicant or property owner. The request shall include descriptions, drawings, calculations and other information that is necessary to evaluate the waiver of stormwater management requirements. **(b)** An exception may be granted provided that: (i) exceptions to the criteria are the minimum necessary to afford relief, (ii) economic hardship is not sufficient reason to grant an exception, (iii) reasonable and appropriate conditions shall be imposed as necessary upon an exception granted so the intent of the chapter is preserved. **(c)** The minimum requirements for stormwater management may be waived in whole or part	for control measures long-term maintenance outlined under Section 1-10. [NOTE: Not required for localities located outside of Tidewater Virginia] **(c)** Notwithstanding any other provisions of this Ordinance, the following activities are exempt, unless otherwise required by federal law: (1) Permitted surface or deep mining operations and projects, or oil and gas operations and projects conducted under the provisions of Title 45.1 of the Code of Virginia; (2) Clearing of lands specifically for agricultural purposes and the management, tilling, planting, or harvesting of agricultural, horticultural, or forest crops, livestock feedlot operations, or as additionally set forth by the State Board in regulations, including engineering operations as follows: construction of terraces, terrace outlets, check dams, desilting basins, dikes, ponds, ditches, strip cropping, lister furrowing, contour cultivating, contour furrowing, land drainage, and land irrigation; however, this exception shall not apply to harvesting of forest crops unless the area on which harvesting occurs is reforested artificially or naturally in accordance with the provisions of Chapter 11 (§ 10.1-1100 et seq.) of Title 10.1 of the Code of Virginia or is converted to bona fide agricultural or improved pasture use as described in Subsection B of § 10.1-1163 of Article 9 of Chapter 11 of Title 10.1 of the Code of Virginia; (3) Single-family residences separately built and disturbing less than one acre and not part	ordinance has no such exceptions mentioned. Both provide exemptions for surface or deep mining, oil and gas operations; lands cleared for agricultural purposes (see item 2 for specific exemptions); linear development projects; separately built single-family residences or additions; land disturbing activities on less than 2,500 square feet of land (NOTE: Localities within Tidewater Virginia are required to regulate land disturbing activities equal to or exceeding an area of 2,500 square feet in all areas designated as subject to the Chesapeake Bay Preservation Area Designation and Management Regulations, pursuant to Chapter _[cross-reference Chesapeake Bay Preservation Ordinance]]; discharges to a sanitary or combined sewer; state or federal reclamation projects to return land to agriculture or open space; road paving and maintenance activities; and in public emergency situations.

provided at least one of the following conditions applies: (1) It can be demonstrated that the proposed development is not likely to impair attainment of the objectives of this chapter. (2) The program administrator finds that meeting the minimum on-site requirements is not feasible due to the natural or existing physical characteristics of the site. (3) The location of the land development project in the watershed is such that on-site stormwater management will result in increased flows on the main stream. The applicant or property owner must provide supporting hydrologic analysis in accordance with the stormwater management design manuals. (4) The proposed land development project will not generate an increase in the two-year and ten-year predevelopment peak discharge rates and the off-site receiving channel is adequate. (5) An existing off-site stormwater management facility provides the required controls. (6) An existing regional stormwater management facility provides the required controls, and the property owner agrees to a pro-rata share contribution in accordance with section 21.5-2 (7) A regional stormwater management facility has been identified for construction in the Stafford County Land Use Plan. The regional stormwater management facility will provide the required controls for the land development project, the property owner agrees to construct all necessary interim stormwater management controls deemed necessary by the program administrator, and the property owner agrees to a pro-rata share contribution in accordance with section 21.5-2 **<u>Submission and Approval Required; Exceptions</u>**	of a larger common plan of development or sale, including additions or modifications to existing single-family detached residential structures [NOTE: Localities within Tidewater Virginia are required to regulate single family residences where land disturbance exceeds 2,500 square feet," pursuant to Chapter ___ [cross-reference Chesapeake Bay Preservation Ordinance]]; (4) Land disturbing activities that disturb less than one acre of land area [NOTE: Localities within Tidewater Virginia are required to regulate land disturbing activities equal to or exceeding an area of 2,500 square feet in all areas designated as subject to the Chesapeake Bay Preservation Area Designation and Management Regulations, pursuant to Chapter _[cross-reference Chesapeake Bay Preservation Ordinance]], or activities that are part of a larger common plan of development or sale that is one acre or greater of disturbance [NOTE: The Locality may reduce this exception to a smaller area of disturbed land or qualify the conditions under which this exception shall apply]; (5) Discharges to a sanitary sewer or a combined sewer system; (6) Activities under a State or federal reclamation program to return an abandoned property to an agricultural or open land use; (7) Routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original construction of the project. The paving of an existing road with a compacted or impervious surface and reestablishment of existing associated ditches	

(sec 11-31) **(a)** No person shall engage in any land-disturbing activity until he has submitted to the plan-approving authority an erosion and sediment control and stormwater management plan for such land-disturbing activity and until such plan has been reviewed and approved by the plan-approving authority. It shall be the responsibility of the owner or lessee of the land or his duly authorized agent to prepare and submit such plan to the plan-approving authority. **(b)** There shall be no issuance of approval or permits for any land-disturbing activity, such as subdivision plat approval or issuance of building permits, until the required erosion and sediment control plan has been approved pursuant to this article. **(c)** This section shall not apply to any person whose land-disturbing activities involve lands which extend into the jurisdiction of another local erosion and sediment control program, provided such person has a plan approved by the state soil and water conservation board. Such person shall comply with the requirements of section 11-15 **(d)** This section shall not apply to any state agency that undertakes a project involving a land-disturbing activity.	and shoulders shall be deemed routine maintenance if performed in accordance with this Subsection; and (8) Conducting land-disturbing activities in response to a public emergency where the related work requires immediate authorization to avoid imminent endangerment to human health or the environment. In such situations, the Administrator shall be advised of the disturbance within seven days of commencing the land-disturbing activity and compliance with the administrative requirements of Subsection (a) is required within 30 days of commencing the land-disturbing activity.	
Prohibitions (sec 21.5-19) **(a)** It shall be unlawful to: (1) Cause or allow illicit discharges into the county's stormwater system; (2) Discharge materials other than stormwater into the stormwater system by spills, dumping, or disposal without a VPDES permit; (3) Cause or allow industrial discharges into the stormwater system without a VPDES permit; or	**Stormwater Management Program: Established; Submission and Approval of Plans; Prohibitions (sec 1-4)** **(a)** Pursuant to § 10.1-603.3 of the Code of Virginia, [Locality] hereby establishes a Virginia stormwater management program for land-disturbing activities and adopts the applicable Regulations that specify standards and specifications for VSMPs promulgated by	Stafford County ordinance prohibits all discharges into the county's stormwater system except under thirteen specific circumstances. The state ordinance simply states that a permit will only be issued after 1) applicant has a general permit registration statement;

(4) Violate any condition or provision of this article or any permit granted for stormwater discharges. **(b)** Subject to the provisions of subsection (c) below, the following activities shall not be unlawful discharges: (1) Discharges pursuant to a VPDES or NPDES permit; (2) Discharges resulting from firefighting activities; (3) Water line flushing; (4) Landscape irrigation; (5) Diverted stream flows or rising groundwater; (6) Infiltration of uncontaminated groundwater; (7) Pumping of uncontaminated groundwater; (8) Discharges from potable water sources, foundation drains, irrigation water, springs, water from crawl spaces or footing drains; (9) Air conditioning condensation; (10) Lawn watering; (11) Residential car washing; (12) Public street washing; (13) Swimming pool discharges. **(c)** In the event that any of the activities listed in subsection (b) above are found to cause sewage, industrial wastes or other wastes to be discharged into the system, the director shall so notify the person performing such activities, and shall order that such activities be stopped or conducted in a manner to avoid the discharge or sewage, industrial wastes or other wastes into a storm sewer system. The failure to comply with any such order shall constitute a violation of the provisions of this article.	the State Board for the purposes set out in Section 1-1 of this Ordinance. The [local governing body] hereby designates _____ as the Administrator of the Virginia stormwater management program. **(b)** No VSMP authority permit shall be issued by the Administrator, until the following items have been submitted to and approved by the Administrator as prescribed herein: (1) A permit application that includes a general permit registration statement; (2) An erosion and sediment control plan approved in accordance with the [insert locality name] Erosion and Sediment Control Ordinance [citation to local ordinance]; and (3) A stormwater management plan that meets the requirements of Section 1-6 of this Ordinance. **(c)** No VSMP authority permit shall be issued until evidence of general permit coverage is obtained. **(d)** No VSMP authority permit shall be issued until the fees required to be paid pursuant to Section 1-15, are received, [optional: and a reasonable performance bond required pursuant to Section 1-16 of this Ordinance has been submitted.] **(e)** No VSMP authority permit shall be issued unless and until the permit application and attendant materials and supporting documentation demonstrate that all land clearing, construction, disturbance, land development and drainage will be done according to the approved permit. **(f)** No grading, building or other local permit shall be issued for a property unless a VSMP	2) an E&S plan; and 3) A stormwater management plan that meets the requirements of Section 1-6 of the State Ordinance.

	authority permit has been issued by the Administrator.	
<u>Stormwater drainage technical Criteria (sec 21.5-3)</u> **(a)** All land development projects shall provide for a system of adequate stormwater drainage. The system shall be based on sound engineering practices and shall be certified as adequate to provide for the necessary stormwater drainage by a professional licensed in Virginia to perform such work. **(b)** Stormwater drainage systems shall be designed and constructed in accordance with the stormwater management design manuals. Design details for stormwater drainage systems shall be identified on the stormwater management design plan. **(c)** Stormwater drainage systems shall be designed such that properties over which surface waters are conveyed, from the development site to discharge point(s), are not adversely affected. The increase in runoff volume caused by the development shall not aggravate an existing drainage problem or cause a drainage problem. A downstream drainage system may be created, expanded or improved in combination with or in lieu of on-site stormwater detention if approved by the program administrator. **(d)** Stormwater drainage systems and stormwater management facilities shall be designed to honor natural drainage divides to the maximum extent practicable. **(e)** Concentrated surface waters, including outflows from stormwater management facilities, shall not be discharged onto an adjoining		Stafford specifies criteria for stormwater drainage systems including that they be designed by a licensed professional; based on the Stafford County Stormwater Management Design Manual or the Virginia Stormwater Management Handbook; not adversely affect downgradient properties; honor natural drainage divides; discharged onto adjacent property without a stormwater easement unless into an adequate channel or drainage system; surface runoff of greater than 3 cubic feet per second will be piped when lot size is less than 30,000 square feet accept where LID has been applied; and where lot sizes are less than 30,000 square feet, they be graded in such a manner that surface runoff does not cross more than 3 lots before it is collected in a storm sewer system or designed stormwater conveyance channel. In addition, Stafford ordinance identifies the EPA Low-Impact Development Design Strategies: An Integrated Design Approach

developed property (such as any developed nonresidential property, a residential lot less than three (3) acres or the improved portion of a residential lot three (3) acres or greater), unless a storm drainage easement has been recorded on the affected property or unless the discharge is into a well defined natural stream (i.e., incised channel with bed and banks) or an existing drainage system of adequate capacity. Such drainage easement(s) shall be obtained prior to approval of the stormwater management design plan and shall extend to the nearest recorded storm drainage easement, well-defined natural stream, or manmade stormwater facility, channel or pipe of adequate capacity. **(f)** Stormwater drainage easements shall be extended where necessary to upstream property lines to permit future development reasonable access to on-site drainageways or drainage systems for connections. **(g)** Surface runoff greater than three (3) cubic feet per second for the ten-year storm event that flows through lots shall be piped when average lot size is less than thirty thousand (30,000) square feet except that the program administrator may approve an open-channel system where the preservation of a natural drainageway is desirable or the use of an open channel will not interfere with the use of the property. This requirement shall not apply to low-impact development sites designed in accordance with the requirements of subsection (e) of section 21.5-2 **(h)** Residential lots in which lot size is less than thirty thousand (30,000) square feet shall be graded in such a manner that surface runoff does not cross more than three (3) lots before it is		manual and the Low-Impact Development Hydrologic Analysis manual by reference (Sec. 21.5-1).

collected in a storm sewer system or designed stormwater conveyance channel.		
Lots for stormwater management facilities. (Sec. 22-152.) For purpose of this chapter, managing stormwater shall be handled by stormwater management facilities (ponds and other centralized stormwater best management practices) and low-impact development integrated management practices (IMP). (a) For residential subdivisions, all stormwater-management facilities and the access road shall be located on open-space parcels with frontage on a public right-of-way. The open-space parcel shall be conveyed to and maintained by a homeowners association. (b) All stormwater-management facilities shall have a storm drainage easement located around the facility in accordance with the Stafford County Stormwater Management Design Manual. The easement shall be fully contained within the parcel. (c) The access to all stormwater-management facilities shall be an ingress/egress easement dedicated to public use and shall be fully contained within the parcel. (d) Open space parcels for stormwater-management facilities shall be exempt from the provisions of section 22-144 (e) IMP shall be permitted on residential building lots in accordance with the provisions of chapter 21.5 of this Code. (f) All areas used for IMPs shall have a storm drainage easement located around the area in accordance with the Stafford County Stormwater Management Design Manual. The easement may be contained on more than one lot or parcel.		Stafford specifies requirements for lots used for stormwater management facilities and LID IMPs. For all residential subdivisions, they will be on open-space parcels conveyed to and maintained by an HOA; they will have a surrounding easement as well as an ingress/egress easement. IMPs will be permitted on residential building lots but must be surrounded by an easement and access to all IMPs must be provided.

(g) Provisions shall be established to provide access to all areas used for IMP. Unless the area used for an IMP adjoins a public street, the access from a public street shall be within an ingress/egress easement dedicated to public use and may be contained on more than one lot or parcel. The width and location of the easement shall be identified on the construction or grading plan and the record plat.		
Stormwater management plans (sec 21.5-4) **A) Stormwater management concept plans:** **(1)** All preliminary plans of subdivision shall provide a stormwater management concept plan describing, in general, how stormwater runoff through and from the development will be conveyed and controlled. **(2)** The stormwater management concept plan must be approved prior to submission of a stormwater management design plan (as part of the construction plan) for the entire development, or portions thereof. Commercial developments shall not require a stormwater management concept plan. **(3)** A copy of the approved stormwater management concept plan shall be submitted with the stormwater management design plan, except for commercial developments. The program administrator shall check the design plan for consistency with the concept plan and may require a revised stormwater management concept plan if changes in the site development proposal have been made. **(4)** The stormwater management concept plan shall provide all appropriate information as identified in the stormwater management design	**Stormwater Management Plan Contents of Plan (sec 1-6)** **(a)** The Stormwater Management Plan, required in Section 1-4 of this Ordinance, must apply the stormwater management technical criteria set forth in Section 1-9 of this Ordinance to the entire land-disturbing activity, consider all sources of surface runoff and all sources of subsurface and groundwater flows converted to subsurface runoff, and include the following information: (1) Information on the type and location of stormwater discharges; information on the features to which stormwater is being discharged including surface waters or karst features, if present, and the predevelopment and postdevelopment drainage areas; (2) Contact information including the name, address, and telephone number of the owner and the tax reference number and parcel number of the property or properties affected; (3) A narrative that includes a description of current site conditions and final site conditions [Alternatively, the locality may allow the information that addresses the current and final site conditions to be provided	Stafford County requires a two step process – first, applicant must submit a SW Concept Plan; second, after approval of the Concept Plan, the applicant must submit a SW Design Plan. Commercial projects are not required to submit the SW Concept Plan. The State model ordinance only requires a SW Management Plan. Both the Stafford and State ordinances require some similar elements, such as: Maps of the site indicating all major features and facilities, soils, vegetation, extent of clearing; overview of current, existing conditions; hydrologic/hydraulic analysis of runoff; description of stormwater facilities; impacts on adjoining properties; location of outflows, etc. However, the Stafford ordinance has more specificity,

manuals. **(5)** The stormwater management concept plan shall include a hydrologic/hydraulic analysis of the downstream watercourse for all concentrated surface waters that will be discharged onto a developed property. The program administrator may request relocation of a stormwater outfall if other alternative discharge locations are practical. **(6)** Prior to approval of the stormwater management concept plan, the program administrator, or his designee, shall meet on site with the applicant or his representative to field-verify the hydraulic conditions of all receiving channels. **(7)** The stormwater management concept plan shall utilize to the maximum extent practicable low-impact development site planning in accordance with the low-impact development design manuals. **B) Stormwater Management design plan content;** The stormwater management design plan shall contain maps, charts, graphs, tables, photographs, narrative descriptions, explanations, and citations to supporting references as appropriate to communicate the information required by this chapter and the stormwater management design manuals and the low-impact development design manuals. At a minimum, the stormwater management design plan shall contain the following: **(1)** General. **a.** Description of the project, and proposed design, including how water quality, quantity and stormwater drainage requirements will be addressed.	and documented during the review process]; (4) A general description of the proposed stormwater management facilities and the mechanism through which the facilities will be operated and maintained after construction is complete; (5) Information on the proposed stormwater management facilities, including: (i) The type of facilities; (ii) Location, including geographic coordinates; (iii) Acres treated; and (iv) The surface waters or karst features, if present, into which the facility will discharge. (6) Hydrologic and hydraulic computations, including runoff characteristics; (7) Documentation and calculations verifying compliance with the water quality and quantity requirements of [Section 1-9 of this Ordinance or the referenced local manual]. (8) A map or maps of the site that depicts the topography of the site and includes: (i) All contributing drainage areas; (ii) Existing streams, ponds, culverts, ditches, wetlands, other water bodies, and floodplains; (iii) Soil types, geologic formations if karst features are present in the area, forest cover, and other vegetative areas; (iv) Current land use including existing structures, roads, and locations of known utilities and easements; (v) Sufficient information on adjoining parcels to assess the impacts of stormwater from the site on these parcels; (vi) The limits of clearing and grading, and the proposed drainage patterns on the site; (vii) Proposed buildings, roads, parking areas, utilities, and stormwater management facilities; and (viii) Proposed land use with	particularly in the SW Management Design Plan. The applicant must provide information on both "temporary" as well as permanent SW facilities as well as a project schedule. The County requires the description of the SW management facilities to include the " plan, profile, cross sections, and other pertinent data necessary for review as identified in the stormwater management design manuals." Also requires an analysis of wells and septic fields (if applicable), a geotechnical report (certified by engineer), a landscape plan with a management plan specified for vegetation within and adjacent to the SW facilities, identification of easements for inspections and maintenance, and a maintenance plan. Stafford also includes guidance on the use of low impact development (LID) sites, the state ordinance has no mention of LID. Stafford requires all SW drainage systems to be designed to accommodate 100

b. Proposed erosion and sediment controls, and proposed temporary and permanent stormwater management facilities. **c.** Project schedule, including a sequence of construction. **d.** Maps depicting all pertinent stormwater management information necessary for review of the plan as identified in the stormwater management design manuals, including, but not limited to maps of the drainage area, soils and plan view of the development project. **(2)** Stormwater management facilities. **a.** Stormwater management facilities identified on a map, including details, plan, profile, cross sections, and other pertinent data necessary for review as identified in the stormwater management design manuals. **b.** Comprehensive hydrologic and hydraulic design calculations, including all assumptions and criteria, for the pre-development and post-development conditions for the design storms specified in this chapter or the stormwater management design manuals. **c.** If infiltration facilities are proposed, the location of existing and proposed wells and septic system drain fields shall be shown along with an analysis that supports the location of the infiltration facility in the soil type identified. **d.** A geotechnical report with recommendations and earthwork specifications in accordance with requirements in the stormwater management design manuals. The geotechnical engineer shall acknowledge on the design plan that the geotechnical recommendations have been incorporated into the design of stormwater management facilities.	tabulation of the percentage of surface area to be adapted to various uses, including but not limited to planned locations of utilities, roads, and easements. **(b)** If an operator intends to meet the water quality and/or quantity requirements set forth in Section 1-9 of this Ordinance through the use of off-site compliance options, where applicable, then a letter of availability from the off-site provider must be included. Approved off-site options must achieve the necessary nutrient reductions prior to the commencement of the applicant's land-disturbing activity except as otherwise allowed by § 10.1-603.8:1 of the Code of Virginia. **(c)** Elements of the stormwater management plans that include activities regulated under Chapter 4 (§54.1-400 et seq.) of Title 54.1 of the Code of Virginia shall be appropriately sealed and signed by a professional registered in the Commonwealth of Virginia pursuant to Article 1 (§ 54.1-400 et seq.) of Chapter 4 of Title 54.1 of the Code of Virginia. **(d)** A construction record drawing for permanent stormwater management facilities shall be submitted to the Administrator. The construction record drawing shall be appropriately sealed and signed by a professional registered in the Common-wealth of Virginia, certifying that the stormwater management facilities have been constructed in accordance with the approved plan. [NOTE: An Administrator may elect not to require construction record drawings for stormwater management facilities for which maintenance	year rain events. Both ordinances call for 60 day review periods to determine acceptance or rejection. State ordinance includes a 15 day preliminary review period, Stafford 30 days, but is included in the 60 day review period. Stafford allows an additional 60 day period of review if modifications are made. State ordinance includes a 45 day review after modifications.

e. A landscaping plan describing the woody and herbaceous vegetative stabilization and management techniques to be used within and adjacent to the stormwater management facility in accordance with standards in the stormwater management design manuals. **f.** Identification of all easements needed for inspection and maintenance of stormwater management facilities in accordance with specifications in the stormwater management design manuals. **g.** A maintenance plan identifying the parts or components of the stormwater management facility that need to be maintained to ensure continued proper functioning of the facility. If the designated maintenance responsibility is with a party other than Stafford County, then a maintenance agreement shall be executed between the responsible party and Stafford County. **(3)** Low-impact development sites. **a.** Integrated management practices identified on a map and corresponding design details in accordance with the low-impact development design manuals. **b.** Hydrologic computations to determine low-impact development stormwater requirements in accordance with the low-impact development design manuals. **c.** Hydrologic evaluation and design details for supplemental conventional stormwater management facilities in the event that integrated management practices alone cannot meet site stormwater management requirements. **d.** Identification of all storm drainage easements needed to establish locations of integrated management practices.	agreements are not required pursuant to Section 1-10 (b).] **<u>Review of Stormwater Management Plan (sec 1-8)</u>** **(a)** The Administrator [NOTE: May include "or any duly authorized agent of the Administrator"] shall review stormwater management plans and shall approve or disapprove a stormwater management plan according to the following: (1) The Administrator shall determine the completeness of a plan in accordance with Section 1-6 of this Ordinance, and shall notify the applicant, in writing, of such determination, within 15 calendar days of receipt. If the plan is deemed to be incomplete, the above written notification shall contain the reasons the plan is deemed incomplete. (2) The Administrator shall have an additional 60 calendar days from the date of the communication of completeness to review the plan, except that if a determination of completeness is not made within the time prescribed in subdivision (1), then plan shall be deemed complete and the Administrator shall have 60 calendar days from the date of submission to review the plan. (3) The Administrator shall review any plan that has been previously disapproved, within 45 calendar days of the date of resubmission. (4) During the review period, the plan shall be approved or disapproved and the decision communicated in writing to the person responsible for the land-disturbing activity or his designated agent. If the plan is not	

(4) Stormwater drainage systems. **a.** Hydrologic and hydraulic design calculations, including calculations for overlot drainage systems. **b.** Design specifications in accordance with the stormwater management design manuals. **c.** Identification of all easements needed for inspection and maintenance of drainage systems in accordance with specifications in the stormwater management design manuals. **d.** All existing and proposed drainage systems, natural or manmade, shall be analyzed for the one-hundred-year storm impact as required in subsection 11-12(b)(3) a., b. and c. **(d) Stormwater management design plan approval.** (1) A maximum of thirty (30) calendar days from the receipt of an application will be allowed for preliminary review of the application to determine if the application is complete. During this period, the application will be accepted for review, which will begin the sixty-day review period, or rejected for incompleteness. The applicant will be informed in writing of the information necessary to complete the application. (2) The sixty-day review period begins on the day the complete stormwater management design plan is accepted for review. At this time an acknowledgment letter will be sent to the applicant. During the sixty-day review period, the program administrator shall either approve or disapprove the plan and communicate the decision to the applicant in writing. Approval or denial shall be based on the plan's compliance with this chapter and the stormwater management design manuals. In cases where modifications are required to approve the plan, the county shall have	approved, the reasons for not approving the plan shall be provided in writing. Approval or denial shall be based on the plan's compliance with the requirements of this Ordinance. (5) If a plan meeting all requirements of this Ordinance is submitted and no action is taken within the time provided above in subdivision (2) for review, the plan shall be deemed approved. **(b)** Approved stormwater plans may be modified as follows: (1) Modifications to an approved stormwater management plan shall be allowed only after review and written approval by the Administrator. The Administrator shall have 60 calendar days to respond in writing either approving or disapproving such request. (2) The Administrator may require that an approved stormwater management plan be amended, within a time prescribed by the Administrator, to address any deficiencies noted during inspection. **(c)** The Administrator shall require the submission of a construction record drawing for permanent stormwater management facilities. The Administrator may elect not to require construction record drawings for stormwater management facilities for which recorded maintenance agreements are not required pursuant to Section 1-10 (b).	

an additional sixty (60) days to review the revised plan from the initial and any subsequent resubmission dates. If the plan is approved, one copy bearing certification of such approval shall be returned to the applicant. If the plan is disapproved, the applicant shall be notified in writing of the reasons. (3) All plans, profiles, and specifications shall be distributed to the appropriate county departments and/or state agencies for review and recommendation. Comments and recommendations shall be coordinated at the meeting of the technical review committee. The technical review committee shall review the plan for compliance with this chapter. (4) The applicant or any aggrieved party authorized by law may appeal the program administrator's decision of approval or disapproval of a stormwater management design plan application within thirty (30) days after rendering of such decision by the program administrator, to the board of supervisors. **(e) Conditions of approval.** (1) The applicant shall comply with all applicable requirements of the approved plan. (2) No substantive changes shall be made to an approved plan without review and written approval by the program administrator. (3) No transfer, assignment, or sale of the rights granted by virtue of an approved plan shall be made unless a written notice of transfer is filed with the program administrator and the transferee certifies agreement to comply with all obligations and conditions of the approved plan. (4) The stormwater management design plan's approval expires in one year from the date of		

approval unless a final plat is recorded or unless work has actually begun on the site. The recordation of a final plat for a section of a subdivision (or initiation of construction in a section) does not vest the approval of the stormwater management design plan for the remainder of the subdivision. If the stormwater management design plan expires, the applicant shall file with the program administrator for reapproval of the stormwater management design plan. (5)Three (3) sets of certified as-built plans, meeting the specifications documented in the stormwater management design manuals, shall be submitted to the program administrator upon completion of the project. Each as-built plan shall have a certification statement by a professional licensed in Virginia to perform such work. (6)The applicant shall be responsible for implementing the approved plan, and may be required to conduct a monitoring program, if deemed necessary by the program administrator		
	<u>Stormwater Pollution Prevention Plan (sec 1-5)</u> **(a)** The Stormwater Pollution Prevention Plan (SWPPP) shall include the content specified by Section 4VAC50-60-54 and must also comply with the requirements and general information set forth in Section 4VAC50-60-1170, Section II [stormwater pollution prevention plan] of the general permit. **(b)** The SWPPP shall be amended by the operator whenever there is a change in design, construction, operation, or maintenance that	Stafford ordinances do not include a pollution prevention plan.

	has a significant effect on the discharge of pollutants to state waters which is not addressed by the existing SWPPP. **(c)** The SWPPP must be maintained by the operator at a central location onsite. If an onsite location is unavailable, notice of the SWPPP's location must be posted near the main entrance at the construction site. Operators shall make the SWPPP available for public review in accordance with Section II of the general permit, either electronically or in hard copy.	
	Pollution Prevention Plan; Contents of Plan (sec 1-7) **(a)** Pollution Prevention Plan, required by 4VAC50-60-56, shall be developed, implemented, and updated as necessary and must detail the design, installation, implementation, and maintenance of effective pollution prevention measures to minimize the discharge of pollutants. At a minimum, such measures must be designed, installed, implemented, and maintained to: (1) Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge; (2) Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials present on the site to precipitation and to stormwater; and	

	(3) Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures. **(b)** The pollution prevention plan shall include effective best management practices to prohibit the following discharges: (1) Wastewater from washout of concrete, unless managed by an appropriate control; (2) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials; (3) Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and (4) Soaps or solvents used in vehicle and equipment washing. **(c)** Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited unless managed by appropriate controls.	
<u>Stormwater Management Technical Criteria(sec 21.5-2)</u> **(a) General.** (1) Site designs shall minimize the generation of stormwater and maximize pervious areas for stormwater treatment. Structural and nonstructural infiltration BMPs shall be encouraged to provide stormwater quality and quantity control and groundwater recharge. (2) Natural channel characteristics shall be preserved to the maximum extent practicable. (3) Residential, commercial or industrial developments shall apply these stormwater management criteria to land development as a whole. Individual residential lots in new		The State Model Ordinance only includes technical design criteria by reference to 4VAC50-60-63 [water quality design criteria requirements]; 4VAC50-60-65 [water quality compliance]; 4VAC50-60-66 [water quantity]; 4VAC50-60-69 [offsite compliance options]; 4 VAC 50-60-72 [design storms and hydrologic methods]; 4VAC50-60-74 [stormwater harvesting]; 4VAC50-60¬76 [linear development project]; and, 4VAC50-60-85

subdivisions shall not be considered separate land development projects, but rather the entire subdivision shall be considered a single land development project. Hydrologic parameters shall reflect the ultimate land development and shall be used in all engineering calculations. (4) The design criteria, methodologies and construction specifications for all stormwater management facilities, and structural and nonstructural BMPs shall be those of the stormwater management design manuals. The design shall be certified by a professional licensed in Virginia to perform such work. (5) Predevelopment and postdevelopment runoff rates shall be verified by calculations that are consistent with good engineering practices and methodologies found in the stormwater management design manuals. (6) Outflows from a stormwater management facility shall be discharged to an adequate channel, and velocity dissipaters shall be placed at the outfall of all stormwater management facilities and along the length of any outfall channel as necessary to provide a nonerosive velocity of flow from the facility to a channel. (7) Safety measures shall be incorporated into the design of all stormwater management facilities in accordance with the stormwater management design manuals. (8) Stormwater management facilities shall be designed to minimize the propagation of insects, particularly mosquitoes, provided that design features proposed will not negatively impact the functions of the facility. (9) Impounding structures that are not covered by the Virginia Impounding Structures Regulations		[stormwater management impoundment structures or facilities] in Section 1-9. In addition to referencing design criteria in the Stafford County Stormwater Management Design Manual and the Virginia Stormwater Management Handbook, Stafford ordinance requires that site designs minimize the generation of stormwater and maximize pervious areas for stormwater treatment; natural channel characteristics shall be preserved; that hydrologic parameters reflect the ultimate land development and be used in all engineering calculations; be designed by a licensed professional; that predevelopment and postdevelopment runoff rates be calculated; that outflows from stormwater management facilities be properly managed; that safety measures be incorporated; designed to minimize the propagation of insects; that impounding structures that are not covered by the Virginia Impounding Structures Regulations (4VAC50-20-10, et seq.) be engineered for structural

(4VAC50-20-10, et seq.) shall be engineered for structural integrity during the 100-year storm event in accordance with the stormwater management design manuals. (10) All stormwater management facilities shall have a maintenance plan and agreement, which identifies the owner and responsible party for carrying out the maintenance plan in accordance with section 21.5-5 (11) Storm drainage easements shall be required on lots or parcels where the conveyance, storage or treatment of stormwater is proposed or can reasonably be expected to occur. These drainage easements shall be located in accordance with the provisions of section 22-152 (Lots for stormwater management facilities) of the Code and shall be computed and identified on the plat of record prior to recordation in accordance with the stormwater management design manuals. (12) Notwithstanding any other provisions of this chapter or waivers or exemptions thereto, land development projects shall comply with chapter 11 (Erosion and Sediment Control) and section 28-62 (Chesapeake Bay preservation area overlay districts) of the Code. (13) Construction of stormwater management facilities or modifications to channels shall comply with all applicable laws and regulations. Evidence of all applicable federal and state permits required for construction of the facility shall be presented to the program administrator prior to issuance of a grading permit. (14) If stormwater management facilities are provided through which water passes at times other than rainfall, the program administrator shall be consulted to ensure the appropriateness of		integrity during the 100-year storm event; that stormwater management facilities have a maintenance plan and agreement; that storm drainage easements be required where necessary; that land development projects shall comply with chapter 11 (Erosion and Sediment Control) and section 28-62 (Chesapeake Bay preservation area overlay districts) of the Code; that if stormwater management facilities are provided through which water passes at times other than rainfall, the program administrator shall be consulted; and that construction of stormwater management impoundment structures within a FEMA designated floodplain shall be avoided to the extent possible, and when unavoidable, all stormwater management facility construction shall be in compliance with all applicable requirements of the flood hazard overlay district. In addition to specific stormwater management design criteria, the Stafford ordinance includes specific requirements for maintaining

design prior to submission of the stormwater management design plan. This applies to all onstream or online stormwater management facilities. (15) Construction of stormwater management impoundment structures within a Federal Emergency Management Agency (FEMA) designated floodplain shall be avoided to the extent possible. When this is unavoidable, all stormwater management facility construction shall be in compliance with all applicable requirements of the flood hazard overlay district as defined in chapter 28 (zoning ordinance) of this Code. **(b) Water quality.** (1) For land development, the postdeveloped stormwater runoff shall be treated by an appropriate technology-based water quality BMP(s) based on the imperviousness of the drainage area as specified in the stormwater management design manuals. (2) The selected water quality BMP(s) shall be located, designed and maintained to perform at or higher than the target pollutant removal efficiency identified in the stormwater management design manuals. (3) The following water quality BMPs shall be used to satisfy the applicable water quality control requirements in this subsection: **a.** Stormwater management retention and extended detention basins; **b.** Stormwater management wetlands; **c.** Stormwater management infiltration facilities; **d.** Stormwater management filtering systems; **e.** Stormwater management open channel systems; **f.** Low-impact development site planning and integrated management practices in accordance with subsection (e); and **g.** Regional stormwater		water quality, protect from stream channel erosion, and protect from flooding. The Stafford ordinance also specifically states that "the use of low-impact development site planning and integrated management practices shall be encouraged to control stormwater runoff at the source and more closely approximate predevelopment runoff conditions." And finally, the Stafford ordinance specifically requires the implementation of regional stormwater management facilities identified in adopted stormwater management plans.

management facilities in accordance with subsection (f). (4) Innovative and alternative water quality BMPs may be allowed for land development at the discretion of the program administrator subject to pollutant removal efficiencies recognized by the Virginia Department of Conservation and Recreation. (5) When a land development project contains or is divided by multiple drainage areas, water quality BMPs shall be evaluated for each drainage area. If a portion of the site is left uncontrolled or a portion of the site is treated with a lower than target pollutant removal efficiency BMP, the program administrator may require performance-based water quality calculations to verify total site water quality compliance in accordance with methodologies in the stormwater management design manuals. Overcompensation of water quality shall be in accordance with requirements outlined in the stormwater management design manuals. (6) Water quality BMPs shall have an acceptable form of water quality pretreatment in accordance with pretreatment requirements found in the stormwater management design manuals. (7) Stormwater discharges from stormwater hotspots shall use specific structural BMPs and pollution prevention practices. Stormwater from a hotspot shall not be infiltrated/released to stormwater management system without proper pretreatment. (8) All redevelopment projects not served by an existing water quality BMP shall reduce post-development pollutant loads to ninety (90) percent of predevelopment levels through the reduction of		

site impervious areas or the application of water quality BMPs in accordance with performance-based criteria in the stormwater management design manuals. For redevelopment of any property that is currently and adequately served by one or more water quality BMPs, the postdevelopment pollution load shall not exceed the predevelopment pollution load. **(c) Stream channel erosion.** (1) Properties and receiving waterways downstream of any land development project shall be protected from erosion and damage due to increases in volume, velocity and frequency of peak flow rate of stormwater runoff in accordance with the minimum design standards set out in this subsection. (2) The land development project shall provide twenty-four-hour extended detention of runoff generated by the one-year, twenty-four-hour-duration storm. (3) The extended detention storage volume, release rate and orifice size shall be determined using the design methods in the stormwater management design manuals. (4) Stream channel erosion impacts to receiving streams due to land development projects shall be addressed for each point of discharge from the development project. (5) In lieu of extended detention of the one-year storm, land development may provide channel improvements, nonstructural practices, low impact development site design or other measures satisfactory to the program administrator to prevent channel erosion. **(d) Flooding.** (1) Downstream properties and waterways shall		

be protected from localized flooding due to increases in volume, velocity and peak flow rate of stormwater runoff in accordance with the minimum design standards set out in this subsection. (2) The ten-year storm post-developed peak rate of runoff from the development site shall not exceed the ten-year predeveloped rate. (3) The design storm shall be defined as either a twenty-four-hour storm using the rainfall distribution recommended by the U.S. Natural Resources Conservation Service (i.e., Soil Conservation Service) when using Soil Conservation Service methods or as the storm of critical duration that produces the greatest required storage volume at the site when using a design method such as the rational method. Selection of appropriate hydrology method and corresponding calculations shall be in accordance with requirements of the stormwater management design manuals. (4) For the purposes of computing runoff, all pervious lands in the site shall be assumed prior to development to be in good condition (if lands are pastures, lawns or parks), with good cover (if lands are woods), or with conservation treatment (if lands are cultivated), regardless of conditions existing at time of computation. (5) Determination of flooding impacts to receiving streams due to land development projects shall be measured at each point of discharge from the development project and such determination shall include any runoff from the balance of the watershed, which also contributes to that point of discharge. Overcompensation of ten-year peak controls shall be in accordance with requirements		

of the stormwater management design manuals. (6) Linear development projects shall not be required to control postdeveloped stormwater runoff for flooding, except in accordance with watershed or regional stormwater management plan. (7). Dam break inundation zones shall be developed as required by Code of Virginia, ßß 10.1-606.2 and 10.1-606.3. b. Any proposal to encroach the dam break inundation zone shall meet the requirements set forth in Code of Virginia ßß 10.1-606.2 and 10.1-606.3. c. Establish a potential dam break inundation zone to provide guidance to design professionals and citizens. **(e) Low-impact development sites.** (1) The use of low-impact development site planning and integrated management practices shall be encouraged to control stormwater runoff at the source and more closely approximate predevelopment runoff conditions. (2) Low-impact development stormwater management design plans developed consistent with the requirements of this subsection shall satisfy the water quality and quantity performance criteria of subsections (b), (c) and (d). (3) The design criteria, hydrologic analysis and computational procedures for low-impact development stormwater management design plans shall be those of the low-impact development design manuals. (4) Low-impact development stormwater management design plans shall not conflict with existing state or Stafford County laws, ordinances, regulations or policies.		

(5) Storm drainage easements shall be recorded to identify the locations of integrated management practices on lots or parcels. The property owner shall not remove or structurally alter integrated management practices without prior written approval from the program administrator. (6) Stormwater runoff from parking lots shall utilize stormwater management infiltration facilities and/or stormwater management filtering systems. These shall be placed within or near the parking lot islands. **(f) Regional stormwater management facilities.** (1) Land development projects shall implement regional stormwater management facilities identified in adopted stormwater management plans in accordance with requirements in the stormwater management design manuals and regulations adopted by the board of supervisors. (2) When a land development project desires to install a regional stormwater management facility at a location not identified in an adopted stormwater management plan, the program administrator shall require submission of a comprehensive watershed study. The watershed study shall include sufficient information to evaluate impacts of the proposed facility on runoff rates, volumes and velocities, and environmental characteristics of the affected areas. (3) Land development projects served by an existing or planned regional stormwater management facility shall pay a pro-rata share of the cost of implementing the facility in accordance with regulations adopted by the board of supervisors.		

Inspections and Maintenance (sec 21.5-5) **(a) Inspections** **(1)** A preconstruction conference between the county, the applicant, and the person(s) performing the work shall be required. **(2)** On-site inspections will be conducted by the county and the applicant in accordance with the stormwater management design manuals. Essential elements of such inspection shall include: a. Inspection immediately following preliminary site preparation, including stripping of vegetation, stockpiling of soil, and construction of temporary stormwater management facilities. b. Inspections during construction of the permanent stormwater management facilities. c. Final inspection of the project to ensure that stormwater management facilities have been constructed in accordance with the approved stormwater management design plan and the stormwater management design manuals. **(3)** All inspections pursuant to this section shall be documented by a written report or log containing dates and times of inspections and comments concerning verbal communications relating to the project. **(4)** If, at any stage of the development, the county determines that the soil or other physical conditions on the site are not as stated or shown on the approved stormwater management plan, or the county determines that the storm drainage system or stormwater management facility is inadequate or not constructed as shown on the approved stormwater management design plan, the county may refuse to approve further work and the county may revoke existing permits or approvals until a revised stormwater management design plan has	**Monitoring and Inspections (sec 1-11)** **(a)** The Administrator [NOTE: May include "or any duly authorized agent of the Administrator"] shall inspect the land-disturbing activity during construction for: (1) Compliance with the approved erosion and sediment control plan; (2) Compliance with the approved stormwater management plan; (3) Development, updating, and implementation of a pollution prevention plan; and (4) Development and implementation of any additional control measures necessary to address a TMDL. **(b)** The Administrator [NOTE: May include "or any duly authorized agent of the Administrator"] may, at reasonable times and under reasonable circumstances, enter any establishment or upon any property, public or private, for the purpose of obtaining information or conducting surveys or investigations necessary in the enforcement of the provisions of this Ordinance. **(c)** In accordance with a performance bond with surety, cash escrow, letter of credit, any combination thereof, or such other legal arrangement or instrument, the Administrator may also enter any establishment or upon any property, public or private, for the purpose of initiating or maintaining appropriate actions which are required by the permit conditions associated with a land-disturbing activity when a permittee, after proper notice, has failed to take acceptable action within the time specified.	**Inspections** Stafford ordinance specifies that a preconstruction meeting be held, and then inspections are conducted on at least three intervals: 1) After preliminary site preparation; 2) during construction of the permanent SW management facility; and 3) a final inspection to ensure that the SW facility was constructed " accordance with the approved stormwater management design plan and the stormwater management design manuals." State ordinance references compliance with four items: 1) an approved E&S control plan; 2) an approved SW management plan; 3) development and implementation of a pollution prevention plan; and 4) development and implementation of control measures that are necessary to address a TMDL. **Maintenance** Stafford specifies that the responsibility for the operation and maintenance of the stormwater management

been submitted and approved. **(5)** Final certification of compliance with the construction specifications and integrity of all storm drainage and stormwater management facilities and their appurtenant structures shall be provided on the as-built plan by a professional licensed in Virginia to perform such work. **(b) Maintenance.** **(1)** Responsibility for the operation and maintenance of the stormwater management facilities and storm drainage system, unless assumed by Stafford County, shall remain with the property owner or an owner's association. All maintenance activities shall be in accordance with standard maintenance practices for stormwater management facilities and the stormwater management design manuals. **(2)** If the designated maintenance responsibility is with a party other than Stafford County, then a maintenance agreement and plan shall be executed between the responsible party and Stafford County. The maintenance agreement shall be recorded with the Clerk of the Circuit Court of Stafford County prior to or in conjunction with recordation of a plat or approval of the site plan. **(3)** To ensure proper performance of the stormwater facility, the property owner or owner's association is responsible for inspecting and performing all necessary maintenance and repairs to the stormwater management facility in accordance with the approved maintenance plan and the stormwater management design manuals. The responsible party shall keep written records of inspections and maintenance/repairs and make them available to the county upon request. **(4)** The county shall notify the property owner or	**(d)** Pursuant to § 10.1-603.12:2 of the Code of Virginia, the Administrator may require every VSMP authority permit applicant or permittee, or any such person subject to VSMP authority permit requirements under this Ordinance, to furnish when requested such application materials, plans, specifications, and other pertinent information as may be necessary to determine the effect of his discharge on the quality of state waters, or such other information as may be necessary to accomplish the purposes of this Ordinance. [NOTE: Please see § 10.1-603.12:2 regarding protection of specified confidential information.] **(e)** Post-construction inspections of stormwater management facilities required by the provisions of this Ordinance shall be conducted by the Administrator [NOTE: May include "or any duly authorized agent of the Administrator"] pursuant to the Locality's adopted and State Board approved inspection program, and shall occur, at minimum, at least once every five (5) years except as may otherwise be provided for in Section 1-10. **<u>Long term Maintenance of Permanent Stormwater Facilities (sec 1-10)</u>** **(a)** The Administrator shall require the provision of long-term responsibility for and maintenance of stormwater management facilities and other techniques specified to manage the quality and quantity of runoff. Such requirements shall be set forth in an instrument recorded in the local land records prior to general permit termination or earlier as required by the Administrator and shall at a	facilities and storm drainage system, unless assumed by Stafford County, shall remain with the property owner or an owner's association and that maintenance be in accordance with stormwater management design manuals. For all non-county maintained facilities, a maintenance agreement and plan will be developed. All maintenance and repairs will be the responsibility of the property owner or owner's association and written records of these efforts will be maintained. If the county identifies that a stormwater management facility is in disrepair or is not functioning as intended , they will notify the property owner or owner's association and set a time for compliance. If the responsible party fails to perform the maintenance and repair, the county shall have the authority to perform the work and recover the costs from the responsible party. The State Ordinance indicates that the locality will identify the party responsible for maintenance and repair in an instrument recorded in the

owner's association in writing when a determination has been made that the stormwater management facility is in disrepair or is not functioning as intended. The notice shall specify the measures needed to comply with the plan and shall specify the time within which such measures shall be completed. If the responsible party fails to perform such maintenance and repair, the county shall have the authority to perform the work and recover the costs from the responsible party.	minimum: (1) Be submitted to the Administrator for review and approval prior to the approval of the stormwater management plan; (2) Be stated to run with the land; (3) Provide for all necessary access to the property for purposes of maintenance and regulatory inspections; (4) Provide for inspections and maintenance and the submission of inspection and maintenance reports to the Administrator; and (5) Be enforceable by all appropriate governmental parties. **(b)** [Optional] At the discretion of the Administrator, such recorded instruments need not be required for stormwater management facilities designed to treat stormwater runoff primarily from an individual residential lot on which they are located, provided it is demonstrated to the satisfaction of the Administrator that future maintenance of such facilities will be addressed through an enforceable mechanism at the discretion of the Administrator. **(c)** [Optional -Applicable only if Subsection 1-10 (b) is included] If a recorded instrument is not required pursuant to Subsection 1-10 (b), the Administrator shall develop a strategy for addressing maintenance of stormwater management facilities designed to treat stormwater runoff primarily from an individual residential lot on which they are located. Such a strategy may include periodic inspections, homeowner outreach and education, or other method targeted at promoting the long-term maintenance of such	local land records. This instrument (maintenance plan) must be submitted for approval, be stated that it runs with the land, provide necessary access for maintenance and inspections, provide for inspections and maintenance and reports to the Administrator, and be enforceable by all appropriate governmental parties. It also allows for "optional" requirements that the agreements not be required for runoff primarily from an individual residential lot so long as it can be demonstrated that future maintenance will be addressed through an enforceable mechanism; and that if an enforceable instrument is not required, that the locality develop a strategy for addressing maintenance of such facilities.

	facilities. Such facilities shall not be subject to the requirement for an inspection to be conducted by the Administrator [NOTE: May include "or any duly authorized agent of the Administrator"].	
General Standards for Land Disturbing Activity (sec 11-12) **(a)** The standards adopted by the county are those criteria, standards and specifications contained in the Virginia Erosion and Sediment Control Handbook and the Virginia Erosion and Sediment Control Regulations. **(b)** The following criteria shall apply to all applications for permits under this chapter. These criteria are in addition to those standards set forth in the handbook referred to in subsection (a) above: (1) Concentrated stormwater runoff leaving a development site shall be discharged directly into a well-defined, natural or manmade off-site receiving channel, pipe or storm sewer system. If there is not well-defined off-site receiving channel or pipe one must be constructed to convey stormwater to the nearest adequate channel. Newly constructed channels shall be designed as adequate channels. (2) An adequate channel shall be defined as a natural or manmade channel or pipe which is capable of conveying the runoff from a ten-year storm without overtopping its banks and from a two-year storm without eroding after development of the site in question. A receiving channel may also be considered adequate at any point where the total contributing drainage area is at least one hundred (100) times greater than the drainage area of the development site in question or if it can	**Technical Criteria For Regulated Land Disturbing Activities (sec 1-9)** **(a)** To protect the quality and quantity of state water from the potential harm of unmanaged stormwater runoff resulting from land-disturbing activities, the Locality hereby adopts the technical criteria for regulated land-disturbing activities set forth in Part II B of the Regulations, as amended, expressly to include 4VAC50-60-63 [water quality design criteria requirements]; 4VAC50-60-65 [water quality compliance]; 4VAC50-60-66 [water quantity]; 4VAC50-60-69 [offsite compliance options]; 4 VAC 50-60-72 [design storms and hydrologic methods]; 4VAC50-60-74 [stormwater harvesting]; 4VAC50-60¬76 [linear development project]; and, 4VAC50-60-85 [stormwater management impoundment structures or facilities], which shall apply to all land-disturbing activities regulated pursuant to this Ordinance, except as expressly set forth in Subsection (b) of this Section. **(b)** Until June 30, 2019, any land-disturbing activity for which 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 thereto, was approved by the Locality prior to July 1, 2012, and for which no	The Stafford requirements for land disturbing activities are located within their E&S Ordinance which cites the Virginia Erosion and Sediment Control Handbook and the Virginia Erosion and Sediment Control Regulations. Stafford also requires additional standards that are specified to provide for adequate channel protection for 2-year and 10-year storms and floodplain protection from 100-year storm elevations. They also require additional soil stabilization efforts including super silt fence, earth berms, sediment trapping measures, soil stabilization blankets or matting, turbidity curtains, and flocculants. Finally, they also encourage the use of construction phasing. The State Model Ordinance has the locality adopting the technical criteria set forth in Part II B of the Regulations, as amended, expressly to include

be shown that the peak rate of runoff from the site for a two-year storm and for a ten-year storm will not be increased after development. (3) Runoff rate and channel adequacy must be verified with engineering calculations in accordance with the procedures outlined in of the Virginia Erosion and Sediment Control Handbook or other methods acceptable to the plan-approving authority. a. Determine the impact, elevation, of the one-hundred-year storm on all existing or proposed stormwater conveyance systems (culverts, storm sewer, ditches, and streams) within or adjacent to the proposed development. b. Proposed lowest floor elevations shall be no less than one foot above the one-hundred-year flood elevation. Wall penetrations shall be no less than one foot above the one-hundred-year flood elevation. c. Prior to beginning framing of a structure, the applicant shall provide verifications sealed by a licensed professional engineer or land surveyor that the lowest floor is no less than one foot above the one-hundred-year flood elevation prescribed in subsection (b)(3)a. (4) If an existing off-site receiving channel is not an adequate channel, the applicant must choose one (1) of the following options. a. Obtain permission from downstream property owners to improve the receiving channel to an adequate condition. Such improvements shall extend downstream until an adequate channel section is reached; or b. Develop a site design that will satisfy the stormwater technical criteria for stream channel erosion and flooding as defined in chapter 21.5	coverage under the general permit has been issued prior to July 1, 2014, shall be considered grandfathered by the Administrator and shall not be subject to the technical criteria of Part II B [of the Regulations], but shall be subject to the technical criteria of Part II C [of the Regulations] for those areas that were included in the approval, provided that the Administrator finds that such 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 thereto, (i) provides for a layout and (ii) the resulting land-disturbing activity will be compliant with the requirements of Part II C. In the event that the Locality-approved document is subsequently modified or amended in a manner such that there is no increase over the previously approved plat or plan in the amount of phosphorus leaving each point of discharge of the land-disturbing activity through stormwater runoff, and such that there is no increase over the previously approved plat or plan in the volume or rate of runoff, the grandfathering shall continue as before. (1) Until June 30, 2019, for local, state, and federal projects for which there has been an obligation of local, 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, such projects shall be considered	4VAC50-60-63 [water quality design criteria requirements]; 4VAC50-60-65 [water quality compliance]; 4VAC50-60-66 [water quantity]; 4VAC50-60-69 [offsite compliance options]; 4 VAC 50-60-72 [design storms and hydrologic methods]; 4VAC50-60-74 [stormwater harvesting]; 4VAC50-60¬76 [linear development project]; and, 4VAC50-60-85 [stormwater management impoundment structures or facilities]. They also allow for "grandfathered" plans for permits issued before July 1, 2012, or for committed funds for local, state, or federal projects so long as construction is completed prior to June 30, 2019. The Model Ordinance does stipulate that only BMPs found on the Virginia Stormwater BMP Clearinghouse Website, or any other control measure duly approved by the Director, can be used, and that no exemption for phosphorus reductions be allowed unless offsite options otherwise permitted pursuant to 4VAC50-60-69 have been considered and found not available. The model ordinance does allow operators to construct to a

(stormwater management ordinance) of this Code; or c. Provide a combination of channel improvement, stormwater detention or other measures which is satisfactory to the plan-approving authority to prevent downstream channel erosion. (5) All on-site stormwater conveyance channels shall be designed and constructed to withstand the expected velocity of flow from a two-year frequency storm without erosion. Stabilization adequate to prevent erosion must also be provided at the outlets of all pipes and paved channels. (6) Except for the months of December through February, all temporary seeding shall conform to the standard and specification for permanent seeding in the Virginia Erosion and Sediment Control Handbook. If field conditions warrant, the inspector may order that the seeding schedule be adjusted to meet the intent of the Virginia Erosion and Sediment Control Handbook. (7) Sod shall be installed to provide vegetation stabilization of residential building lots in which lot size is less than thirty thousand (30,000) square feet. Such sod shall be installed in accordance with the Standard and Specification for Sodding in the Virginia Erosion and Sediment Control Handbook. (8) In addition to the standards and specifications in the Virginia Erosion and Sediment Control Handbook, the following standards shall be indicated on the plan, installed and maintained until permanent stabilization is achieved. a. Super silt fence (standard silt fence supported by chain link fencing) shall be installed adjacent to critical areas (wet lands, streams, stabilized residential lots). b. Earth berms shall be used in lieu of a silt fence as	grandfathered by [insert locality name] and shall not be subject to the technical requirements of Part II B of the Regulations, but shall be subject to the technical requirements of Part II C of the Regulations for those areas that were included in the approval. (2) For land-disturbing activities grandfathered under this Subsection, construction must be completed by June 30, 2019, or portions of the project not under construction shall become subject to the technical requirements of Subsection (a) above. **(c)** In cases where governmental bonding or public debt financing has been issued for a project prior to July 1, 2012, such project shall be subject to the technical requirements Part IIC of the Regulations, as adopted by the Locality in Subsection (b) of this Section. **(d)** The Administrator may grant exceptions to the technical requirements of Part II B or Part II C of the Regulations, provided that (i) the exception is the minimum necessary to afford relief, (ii) reasonable and appropriate conditions are imposed so that the intent of the Act, the Regulations, and this Ordinance are preserved, (iii) granting the exception will not confer any special privileges that are denied in other similar circumstances, and (iv) exception requests are not based upon conditions or circumstances that are self-imposed or self-created. Economic hardship alone is not sufficient reason to grant an exception from the requirements of this Ordinance. (1) Exceptions to the requirement that the	more stringent standard at their discretion.

a perimeter measure on all non-residential sites and on the perimeter of all subdivision development. This shall not apply to individual single-family home permits. c. Sediment trapping measures shall provide two hundred sixty-eight (268) cubic yards of storage per acre of total contributing drainage area. d. Soil stabilization blankets or matting, in accordance with the standards and specifications of the Virginia Erosion and Sediment Control Handbook, shall be installed to provide temporary or permanent stabilization on all slopes equal to or steeper than 3:1. e. The plan-approving authority or program administrator may require the use of turbidity curtains on a site-specific basis for development projects that drain to a lake or reservoir during plan review or inspection. If a turbidity curtain is required, it shall be installed in accordance with the standards and specifications of the Virginia Erosion and Sediment Control Handbook. (9) The program administrator may require the use of flocculents to clarify runoff on a site-specific basis to supplement the erosion and sediment controls on the approved erosion and sediment control plan. If required, the engineer or surveyor who prepared the erosion and sediment control plan shall provide specific guidance to facilitate the application of flocculents on the site. (10) Construction phasing is encouraged for all land development projects and shall be required for those projects that will disturb more than forty (40) acres of land, except for commercial, industrial, institutional, school board, and county development projects. Additionally, the construction of roads and utilities for residential	land-disturbing activity obtain required VSMP authority permit shall not be given by the Administrator, nor shall the Administrator approve the use of a BMP not found on the Virginia Stormwater BMP Clearinghouse Website, or any other control measure duly approved by the Director. (2) Exceptions to requirements for phosphorus reductions shall not be allowed unless offsite options otherwise permitted pursuant to 4VAC50-60-69 have been considered and found not available. **(e)** Nothing in this Section shall preclude an operator from constructing to a more stringent standard at their discretion.	

projects in accordance with approved plans shall also be exempt from the construction phasing requirement. The size of the separate construction phases on a project and the elements of the phasing plan shall be established during plan review and are subject to approval by the plan approving authority. The phasing plan shall address, but not be limited to, the following factors: a. The size of the land disturbance. b. The presence of steep slopes greater than twenty-five (25) percent. c. The presence of highly erodible soils. d. The proximity of the site to perennial or intermittent streams located either on the development site or located on an abutting or adjacent property. e. The ability of traditional/conventional erosion and sediment controls to provide adequate control of sediment and erosion for the land-disturbing activity. f. The proposed use or type of development occurring on the property and the anticipated duration of the land disturbing activity. g. The ability to balance cuts and fills on the site within each phase of the development.		
Performance Guarantee (sec 21.5-6) **(a)** No permits shall be issued unless the applicant furnishes a performance guarantee, in accordance with the current county security policy. This is to ensure that action can be taken by the county, at the applicant's expense, should the applicant fail, after proper notice and within the time specified, to initiate or maintain those measures identified in the approved stormwater management design plan. If the county takes such action upon such		Stafford requires a performance guarantee while the Model Ordinance make no such stipulation.

failure by the applicant, the county shall collect from the applicant the difference should the amount of reasonable cost of such action exceed the amount of the security held. **(b)** A certified estimate of costs by the design engineer or land surveyor shall be used to verify costs for the purpose of determining the amount of the performance guarantee required by this section. **(c)** The performance guarantee furnished pursuant to this section, or the unexpended or unobligated portion thereof, shall be returned to the applicant within sixty (60) days of the final acceptance of completion of the stormwater management facility by the program administrator. Final acceptance shall be defined as the time at which all clearing and grading on the land development site for roads, lots, and other ancillary activities such as recreational or institutional uses, as defined by the preliminary subdivision, construction, or site plan, on land which drains to the stormwater management facility has been completed and stabilized, and construction certification and as-built plans have been received.		
	Hearings (sec 1-12) **(a)** Any permit applicant or permittee, or person subject to Ordinance requirements, aggrieved by any action of the [Locality] taken without a formal hearing, or by inaction of the [Locality], may demand in writing a formal hearing by the [Local governing or appeals body] causing such grievance, provided a petition requesting such hearing is filed with the Administrator within 30 days after notice of such action is given by the Administrator.	Stafford does not provide for hearings in their ordinances, only an appeals process. The State Model Ordinance allows for an applicant to receive a formal hearing.

	(b) The hearings held under this Section shall be conducted by the [local governing or appeals body] at a regular or special meeting of the [local governing or appeals body], or by at least one member of the [local governing or appeals body] designated by the [local governing or appeals body] to conduct such hearings on behalf of the [local governing or appeals body] at any other time and place authorized by the [local governing or appeals body]. **(c)** A verbatim record of the proceedings of such hearings shall be taken and filed with the [local governing or appeals body]. Depositions may be taken and read as in actions at law. **(d)** The [local governing or appeals body] or its designated member, as the case may be, shall have power to issue subpoenas and subpoenas duces tecum, and at the request of any party shall issue such subpoenas. The failure of a witness without legal excuse to appear or to testify or to produce documents shall be acted upon by the local governing body, or its designated member, whose action may include the procurement of an order of enforcement from the circuit court. Witnesses who are subpoenaed shall receive the same fees and reimbursement for mileage as in civil actions.	
"Appeals from decisions under chapter to circuit court". **(sec 11-10)** Final decisions of the county under this chapter shall be subject to review by the circuit court of the county, provided an appeal is filed within thirty (30) days from the date of any written decision	**Appeals (sec 1-13)** [NOTE: The locality shall adopt an appeals procedure. This procedure should be appropriate for the stormwater ordinance provisions and be consistent with the limitations within § 10.1-603.13 of Chapter 6	Stafford provides for appeals to their E&S permiting through the circuit court of appeals. The State recommends that a locality adopt an appeals

adversely affecting the rights, duties or privileges of a person engaging in or proposing to engage in land-disturbing activities.	of Title 10.1 of the Code of Virginia.]	procedure.
Penalties; Enforcement (sec 21.5-9) **(a)** If the program administrator determines that there is a failure to comply with the approved plan, notice of such failure shall be served upon the applicant or person responsible for implementing the plan by registered or certified mail or by delivery to the land development site. The notice shall specify the measures needed to comply with the plan and shall specify the time within which such measures shall be completed. **(b)** Upon failure to comply within the time specified, the permit or approval may be revoked and the applicant or person responsible for implementing the plan shall be deemed to be in violation of this chapter. **(c)** Any person who violates any provision of this chapter shall be guilty of a misdemeanor and shall be subject to a fine or imprisonment for each violation, or both, as provided for in ß 10.1-603.14, Code of Virginia (1950), as amended. **(d)** The program administrator may apply to the circuit court to enjoin a violation or a threatened violation of this chapter as provided for in ß 10.1-603.14, Code of Virginia (1950), as amended, without the necessity of showing that an adequate remedy of law does not exist. **(e)** Without limiting the remedies which may be obtained in this section, the program administrator may bring a civil action against any person or violation of this chapter, or any condition of the permit or approval. The action may seek to impose a civil penalty of not more than two thousand dollars ($2,000.00) for each violation as provided	**Enforcement (sec 1-14)** **(a)** If the Administrator determines that there is a failure to comply with the VSMP authority permit conditions or determines there is an unauthorized discharge, notice shall be served upon the permittee or person responsible for carrying out the permit conditions by any of the following: verbal warnings and inspection reports, notices of corrective action, consent special orders, and notices to comply. Written notices shall be served by registered or certified mail to the address specified in the permit application or by delivery at the site of the development activities to the agent or employee supervising such activities. (1) The notice shall specify the measures needed to comply with the permit conditions and shall specify the time within which such measures shall be completed. Upon failure to comply within the time specified, a stop work order may be issued in accordance with Subsection (b) or the permit may be revoked by the Administrator. (2) If a permittee fails to comply with a notice issued in accordance with this Section within the time specified, the Administrator may issue an order requiring the owner, permittee, person responsible for carrying out an approved plan, or the person conducting the land-disturbing activities without an approved plan or required permit to cease all land-disturbing activities until the violation of the permit has ceased, or an approved plan and	Stafford provides for enforcement of stormwater plan provisions with a notice of violation detailing the measures needed to comply with the plan and specifying the time within which such measures shall be completed. They also stipulate that failure to comply with a notice of violation is a misdemeanor subject to fine or imprisonment and revocation of the permit. The administrator is also allowed to bring a civil action to impose a civil penalty of not more than $2,000.00 for each violation. Stafford also details a range of specific penalties under their E&S program. The State Model Ordinance allows for written or verbal notice of violation. Written notice shall specify the measures needed to comply with the permit conditions and shall specify the time within which such measures shall be completed. Failure to comply can result in a stop order or permit revocation. If an imminent and substantial danger of causing harmful

for in ß 10.1-603.14 of the Code of Virginia 1950, as amended. **(f)** With the consent of the person who has violated or failed, neglected, or refused to obey this chapter or any condition of the permit or approval, the program administrator may issue an order against or to such person for the payment of civil charges for violations in specific sums, not to exceed the limit specified in subsection (e) of this section as provided for in ß 10.1-603.14, Code of Virginia 1950, as amended. Such civil charges shall be instead of any appropriate civil penalty, which could be imposed under subsection (e) of this section. **Penalties (sec 11-7)** **(a) Enforcement.** The county attorney's office will assist with the enforcement of this chapter. **(b) Civil penalties.** **(1)** A civil penalty in the amount listed on the schedule below shall be assessed for each violation of the respective offenses: a. Commencement of land-disturbing activity without an approved plan as provided in subsection 11-14(a) shall be one thousand dollars ($1,000.00) per day. b. Failure to comply with any of the minimum standards of the Virginia Erosion and Sediment Control Regulations shall be one thousand dollars ($1,000.00) per violation per day. c. Failure to comply with any of the standards of section 11-12 shall be one thousand dollars ($1,000.00) per violation per day. d. Failure to obey a stop-work order shall be one thousand dollars ($1,000.00) per day. e. Failure to stop work when permit is revoked	required permits are obtained, and specified corrective measures have been completed. Such orders shall be issued in accordance with [refer to local procedures]. Such orders shall become effective upon service on the person by certified mail, return receipt requested, sent to his address specified in the land records of the locality, or by personal delivery by an agent of the Administrator. However, if the Administrator finds that any such violation is grossly affecting or presents an imminent and substantial danger of causing harmful erosion of lands or sediment deposition in waters within the watersheds of the Commonwealth or otherwise substantially impacting water quality, it may issue, without advance notice or hearing, an emergency order directing such person to cease immediately all land-disturbing activities on the site and shall provide an opportunity for a hearing, after reasonable notice as to the time and place thereof, to such person, to affirm, modify, amend, or cancel such emergency order. If a person who has been issued an order is not complying with the terms thereof, the Administrator may institute a proceeding for an injunction, mandamus, or other appropriate remedy in accordance with Subsection 1¬14 (c). **(b)** In addition to any other remedy provided by this Ordinance, if the Administrator or his designee determines that there is a failure to comply with the provisions of this Ordinance, they may initiate such informal and/or formal administrative enforcement procedures in a manner that is consistent with [reference local	erosion of lands or sediment deposition in of the Commonwealth, an immediate stop order can be issued. Those failing to comply with the provisions of this Ordinance can be subject to a civil penalty not to exceed $32,500 for each violation. It also allows for confinement in jail for not more than 12 months or a fine of not less than $2,500 nor more than $32,500, or both.

shall be one thousand dollars ($1,000.00) per day. **(2)** Each day during which the violation is found to have existed shall constitute a separate offense. However, in no event shall a series of specified violations arising from the same operative set of facts result in civil penalties which exceed a total of ten thousand dollars ($10,000.00). **(c) Civil violations, summons, generally.** (1) The program administrator shall prepare an appropriate "erosion and sediment control civil violations summons" for use in enforcing the provisions of this chapter. (2) Any inspector of the plan-approving authority charged with enforcing this chapter shall serve upon any owner or permittee in violation of this chapter a summons notifying the owner or permittee of said violation. If unable to serve the owner or permittee in person, the inspector may notify by summons an owner or permittee committing or suffering the existence of a violation by certified, return receipt requested mail, of the infraction. The Stafford County Sheriff's Office may also deliver the summons. The summons shall contain the following: a. The name and address of the person charged. b. The nature of the violation and ordinance provision(s) being violated. c. The location, date, and time that the violation occurred, or was observed. d. The amount of the civil penalty assessed for the violation. e. The manner, location, and time that the civil penalty may be paid to the County. f. The right of the recipient of the summons to elect to stand trial for the infraction and the date of such trial.	public facilities/engineering manual and/or specific policy]. **(c)** Any person violating or failing, neglecting, or refusing to obey any rule, regulation, ordinance, order, approved standard or specification, or any permit condition issued by the Administrator may be compelled in a proceeding instituted in [insert appropriate local court] by the Locality to obey same and to comply therewith by injunction, mandamus or other appropriate remedy. **(d)** Any person who violates any provision of this Ordinance or who fails, neglects, or refuses to comply with any order of the Administrator, shall be subject to a civil penalty not to exceed $32,500 for each violation within the discretion of the court. Each day of violation of each requirement shall constitute a separate offense. (1) Violations for which a penalty may be imposed under this Subsection shall include but not be limited to the following: (i) No state permit registration; (ii) No SWPPP; (iii) Incomplete SWPPP; (iv) SWPPP not available for review; (v) No approved erosion and sediment control plan; (vi) Failure to install stormwater BMPs or erosion and sediment controls; (vii) Stormwater BMPs or erosion and sediment controls improperly installed or maintained; (viii) Operational deficiencies; (ix) Failure to conduct required inspections; (x) Incomplete, improper, or missed inspections; and (xi) Discharges not in compliance with the requirements of Section 4VAC 50-60¬1170 of	

(3) The summons shall provide that any person summoned for a violation may within five (5) business days of actual receipt of the summons or, within ten (10) calendar days from the date of mailing of the summons, elect to pay the civil penalty by making an appearance in person, or in writing by mail to the Stafford County Treasurer's Office and, by such appearance, may enter a waiver of trial, admit liability, and pay the civil penalty established for the violation charged and provide that a signature to an admission of liability shall have the same force and effect as a judgment in court; however, an admission shall not be deemed a criminal conviction for any purpose. (4) If a person charged with a violation does not elect to enter a waiver of trial and admit liability, the county shall cause the Sheriff of Stafford County to serve the summons on the person charged in the manner prescribed by law. The violation shall be tried in the Stafford County General District Court in the same manner and with the same right of appeal as provided for in title 8.01, Code of Virginia. In any trial for a scheduled violation authorized by this section, it shall be the burden of the county to show the liability of the violator by the preponderance of the evidence. Any admission of liability, or finding of liability shall not be a criminal conviction for any purpose. (5) The remedies provided for in this section are cumulative, and are not exclusive and, except as provided above, shall be in addition to any other remedies by law. (6) The owner or permittee may pay the civil penalty to the treasurer prior to the trial date, provided he also pays necessary court costs in	the general permit. (2) The Administrator may issue a summons for collection of the civil penalty and the action may be prosecuted in the appropriate court. (3) In imposing a civil penalty pursuant to this Subsection, the court may consider the degree of harm caused by the violation and also the economic benefit to the violator from noncompliance. (4) Any civil penalties assessed by a court as a result of a summons issued by the Locality shall be paid into the treasury of the [Locality] to be used for the purpose of minimizing, preventing, managing, or mitigating pollution of the waters of the locality and abating environmental pollution therein in such manner as the court may, by order, direct. **(e)** Notwithstanding any other civil or equitable remedy provided by this Section or by law, any person who willfully or negligently violates any provision of this Ordinance, any order of the Administrator, any condition of a permit, or any order of a court shall, be guilty of a misdemeanor punishable by confinement in jail for not more than 12 months or a fine of not less than $2,500 nor more than $32,500, or both.	

addition to the civil penalty. (7) Within the time period prescribed in (3), above, the owner or permittee may contest the violation by presenting it to the program administrator, who shall certify the contest in writing, on an appropriate form, to the general district court. (8) Failure to pay the civil penalty, or to contest the violation, within the time period prescribed in 3., above, shall result in the immediate issuance of a stop work order and the revocation of the permit, if any.		
Effective Date (sec 21.5-10) This chapter shall be effective for all new development applications submitted after the effective date of this chapter.		
Fees (sec 11-16) **(a)** The fee for a grading permit shall be in accordance with the fee schedule established by the board of supervisors. An annual renewal fee in accordance with such fee schedule will be charged for those projects extending for more than one year. **(b)** The fees imposed by this section is for the purpose of defraying the costs of reviewing plans and specifications and costs of inspections and administering the provisions of this chapter. **Fees (sec 21.5-8)** Fees shall be paid to the county in accordance with the Stafford County Fee Schedule to defray the cost of plan review, permit administration, and necessary inspections.	**Fees (sec 1-15)** **(a)** Fees to cover costs associated with implementation of a VSMP related to land disturbing activities and issuance of general permit coverage and VSMP authority permits shall be imposed in accordance with Table 1. [NOTE: Such fee attributes include the costs associated with plan review, VSMP registration statement review, permit issuance, state-coverage verification, inspections, reporting, and compliance activities associated with land-disturbing activities as well as state program oversight costs.] When a site or sites has been purchased for development within a previously permitted common plan of development or sale, the Applicant shall be subject to fees ("total fee to be paid by applicant" column) in accordance with the disturbed acreage of their site or sites according to Table 1. (b) Fees for the modification or transfer of	The Virginia model ordinance goes much more in depth. Tables are included in the Virginia model ordinance to show type of violation and fee amount due.

	registration statements from the general permit issued by the State Board shall be imposed in accordance with Table 2. If the general permit modifications result in changes to stormwater management plans that require additional review by the [insert locality name], such reviews shall be subject to the fees set out in Table 2. The fee assessed shall be based on the total disturbed acreage of the site. In addition to the general permit modification fee, modifications resulting in an increase in total disturbed acreage shall pay the difference in the initial permit fee paid and the permit fee that would have applied for the total disturbed acreage in Table 1. (c) The following annual permit maintenance shall be imposed in accordance with Table 3, including fees imposed on expired permits that have been administratively continued. With respect to the general permit, these fees shall apply until the permit coverage is terminated. [NOTE: Fees specified in this Subsection go to the locality.] (d) The fees set forth in Subsections (a) through (c) above, shall apply to: (1) All persons seeking coverage under the general permit. (2) All permittees who request modifications to or transfers of their existing registration statement for coverage under a general permit. (3) Persons whose coverage under the general permit has been revoked shall apply to the Department for an Individual Permit for Discharges of Stormwater From Construction Activities.	

	(4) Permit and permit coverage maintenance fees outlined under Section 1-15 (c) may apply to each general permit holder. (e) No general permit application fees will be assessed to: (1) Permittees who request minor modifications to general permits as defined in Section 1-2 of this Ordinance. Permit modifications at the request of the permittee resulting in changes to stormwater management plans that require additional review by the Administrator shall not be exempt pursuant to this Section. (2) Permittees whose general permits are modified or amended at the initiative of the Department, excluding errors in the registration statement identified by the Administrator or errors related to the acreage of the site. (f) All incomplete payments will be deemed as nonpayments, and the applicant shall be notified of any incomplete payments. Interest may be charged for late payments at the underpayment rate set forth in §58.1-15 of the Code of Virginia and is calculated on a monthly basis at the applicable periodic rate. A 10% late payment fee shall be charged to any delinquent (over 90 days past due) account. The [Locality] shall be entitled to all remedies available under the Code of Virginia in collecting any past due amount.	
Building construction plans (sec 11-13) (a) In building construction projects, erosion and sediment control devices shall be installed before footings may be approved. Such devices shall be maintained in working order throughout		The Stafford E&S Ordinance details specific actions that need to be taken prior to construction. The State Model Ordinance generally details

construction. (b) No building permit for construction shall be issued until all roads and subdivision streets accessing the proposed building site have been graded and covered with base stone. (c) No building permit for construction shall be issued until the effect of a one-hundred-year storm on the proposed building has been calculated by a licensed professional engineer or land surveyor. (d) No building permit for construction shall be issued for a proposed building with a proposed lowest floor less than 1 foot above the one-hundred-year flood elevation as determined in subsection (c).		such requirement under the Technical Criteria For Regulated Land Disturbing Activities.
Grading Permit for Land Disturbing Activity (sec 11-14) (a) No person shall engage in any land-disturbing activity without first having obtained a grading permit. (b) Application for a grading permit shall be made on forms supplied by the permit-issuing agency and shall be accompanied by two (2) sets of the plan approved by the plan-approving authority, together with written, notarized certification that the applicant will be responsible for faithful performance of all components of such plan and intends to comply fully with the provisions of this chapter. Such permit shall grant the right-of-entry onto the property for inspection and monitoring of compliance with the provisions of the Stafford County Code. The granting of the permit vests with the county all authority to take corrective action as necessary to ensure compliance with the provisions of the Stafford County Code.		The State Model Ordinance requires a VSMP Authority permit.
Erosion Impact Area (sec 11-15)		

The county board of supervisors may require approval of an erosion and sediment control plan or conservation plan for any land identified by the county administrator, or his designee, as being an erosion impact area. Such erosion and sediment control plan or conservation plan shall meet those criteria, standards and specifications contained in the Virginia Erosion and Sediment Control Handbook and the Virginia Erosion and Sediment Control Regulations.		
Grading Plans With Building Permit Applications (sec 11-18) (a) A building permit application for a residential lot shall contain a grading plan depicting lot grading, drainage facilities, one-hundred-year flood elevation, lowest floor elevation, and erosion and sediment control measures. (b) Such grading plan for a residential lot shall be prepared by a licensed professional engineer or land surveyor. (c) The building permit application shall provide the name of the responsible land disturber who will be in charge of and responsible for carrying out the land-disturbing activity in accordance with the approved grading plan or an agreement in lieu of a plan.		
Zoning Requirements **" Special regulations." (sec 28-39)** (i) Performance standards in RBC districts. The following standards shall be the minimum required for all uses in the RBC, recreational business campus district: (1) Within the RBC district, stormwater management systems shall be designed to best management practice (BMP) standards for nutrient		Stafford details specific stormwater management requirements for certain types of zoning districts. The State Model Ordinance makes no reference to any specific types of development.

and hydrocarbon pollutant reduction. Stormwater management systems that are not designed for subsurface detention and/or infiltration and whose surface areas are greater than 1.5 acres shall meet wet pond design criteria. Where feasible from an engineering standpoint, wet pond facilities shall be designed to serve more than one property.		
"Application for planned developments." (sec 28-56) In addition to the requirements of the generalized development plan stipulated in Article XIII, at a minimum the following information shall be submitted: (6) A preliminary stormwater management analysis that identifies proposed stormwater management techniques to be utilized. The analysis shall include preliminary stormwater runoff calculations for existing and proposed conditions, including estimates of impervious surface areas and nonpoint source pollutants based on average land cover calculations for the watershed area.		
"Flood Hazard Overlay District (FH)" (sec 28-57) . (j) Design criteria for utilities and facilities. (3) Drainage facilities. All storm drainage facilities shall be designed to convey the flow of surface waters without damage to persons or property. The systems shall ensure drainage away from buildings and on-site waste disposal sites. The board of supervisors may require a primarily underground system to accommodate frequent floods and may require a secondary surface system to accommodate larger, less frequent floods. Drainage plans shall be consistent with local and regional drainage plans. The facilities shall be designed to prevent the discharge of excess runoff		

onto adjacent properties.		
"Chesapeake Bay Preservation Area Overlay District." (Sec. 28-62) (f) Development conditions. (1) Land development in critical resource protection areas may be allowed only when permitted by the administrator and if it is: (e) A flood control or stormwater management facility satisfying the conditions set forth in subdivision 1 of this subsection. 1. Flood control or stormwater management facilities that drain or treat water from multiple development projects or from a significant portion of the watershed may be allowed in the CRPA provided that: (a) The local government has conclusively established that the proposed location of the facility is the optimum location; (b) The size of the facility is the minimum necessary to provide necessary flood control, stormwater treatment both; (c) The facility must be identified in U.S. Army Corps of Engineers permit number 97-1212-45 or be consistent with a stormwater management program that has been approved by the Chesapeake Bay local assistance board as a phase one modification; (d) All applicable permits for construction in state or federal waters must be obtained from the appropriate state and federal agencies such as the U.S. Army Corps of Engineers, the Virginia Marine Resources Commission, and the Virginia Department of Environmental Quality; (e) Approval must be received from the local government prior to construction; and (f) Routine maintenance is allowed to be		

performed on such facilities to assure that they continue to function as designed.		
"Chesapeake Bay Preservation Area Overlay District." (Sec. 28-62) (g) General performance criteria. (1) General performance criteria for development in Chesapeake Bay Preservation Areas (CBPAs). j. For any use or development, stormwater runoff shall be controlled by the use of water quality best management practices consistent with the water quality criteria of chapter 21.5 (Stormwater Management) of this Code.		

ATTACHMENT 2.B.2

Stormwater Management Program Funding Case Studies

GWRC Stormwater Management Program Committee
June 13, 2013

Conservation Concepts examined three local government stormwater program funding approaches that localities in the GWRC region might consider in the future as well. The programs researched include Fairfax County's creation of a Stormwater Utility District, Philadelphia, PA establishment of a Stormwater Fee based on imperviousness, and the District of Columbia's stormwater retention credit program and impervious surface fees. All three operate quite differently, but they have all been designed to fully fund each of the respective stormwater programs. GWRC staff added a summary chart at the end illustrating the array of financing models used by most localities in Virginia that have established a permanent stormwater program funding source.

Fairfax County, Virginia

Overview

In Fiscal Year 2010, the Board of Supervisors established a Stormwater Service District to provide a dedicated funding source for stormwater management. A service district levy of $0.010 (one cent) per $100 of was dedicated to fund the entire stormwater management program. It is anticipated that to fully fund the program in the future, the service district levy will have to be raised to 4.5 cents per $100 of assessed property value. On May 1, 2012, the Fairfax County Board of Supervisors approved an increase in the Stormwater Service District tax for fiscal year 2013 from $0.015 per $100 of assessed real estate value to $0.02 per $100 of assessed real estate value.

The stormwater service district includes all of Fairfax County and the towns of Clifton, Herndon and Vienna. Federal government property and the City of Fairfax are excluded from the stormwater service district.

There are more than 1,500 miles of county-owned stormwater pipes valued at more than one billion dollars. Approximately 250 miles of these pipes are more than 40 years old. As the system ages, the county must reinvest in its stormwater infrastructure to ensure against hazards, flooding and environmental damage. Routine maintenance is significantly more cost effective than allowing the system to fail before repairing it.

Program Summary

- Shifted existing program costs from the General Fund to a Dedicated Revenue Source, to provide a more stable funding mechanism.
- Created a "Service District", as authorized by Va. Code Ann. §§ 15.2-2400 to -2403.1 (2008).
- The district encompassed the entire county with the exception of Fort Belvoir.

- Established a district tax of $0.01 per $100 of assessed valuation.

- A tax was much less costly to establish and administer than setting up a separate utility fee.

- A rate of $0.02 per $100 results in an annual charge per single family residential property of $100 based on a $500,000 home costs $8.33 per month and will show as $50.00 on the semi-annual tax bill

- A Service District Tax may be deductible from state and federal income tax, offsetting its impact to property owners

- The intent was not to increase the tax burden but to shift the program to a dedicated funding stream

How Funding is Used

To improve, operate and maintain the county's stormwater system:

- Routine maintenance includes repairing failed and failing stormwater systems and removing debris from the system to prevent flooding.

To meet state and federal regulatory requirements:

- The county owns and is required to inspect and maintain more than 1,500 miles of pipe and paved channels; 42,000 stormwater structures; and 1,300 stormwater management facilities.
- The county is required to inspect approximately 3,000 private stormwater management facilities.

To meet state dam safety regulations:

- New and more stringent Virginia dam safety regulations have increased the requirements for more frequent inspections and performance standards for state-regulated dams.

To meet state and federal water quality requirements and standards:

- The commonwealth of Virginia and the U.S. Environmental Protection Agency are requiring localities to take significant additional steps to reduce the impact of urban stormwater runoff through the municipal separate storm sewer system permit, known as MS4.
- The MS4 permit requires compliance with the National Pollutant Discharge Elimination System based on the Clean Water Act of 1987.

Under the current County program there is no opportunity for residents or commercial property owners to reduce their SWM fee by installing BMPs or LID practices.

The Fairfax County Stormwater Program

Program Title	FY 2014 2.0 Cent Rate	Full Program* 4.5 Cent Rate
Stormwater Regulatory Program	$5,000	$4,500
Emergency and Flood Response Projects	$900	$1,300
Dam Safety and Facility Rehabilitation	$4,028	$12,600
Conveyance System Rehabilitation	$4,500	$10,000
Stream and Water Quality Improvements	$8,616	$36,500
Stormwater Contributories	$572	$640
Operations	$16,584	$19,460
Stormwater Program Total	**$40,200**	**$85,000**
*Based on 2010 Estimate $ in thousands		

COMPARING COMMERCIAL PARCELS

Assessed Value	Impervious Area (square feet)	Number of Equivalent Residential Units ERU=3398/sq.ft.)	Billing Unit Rate/ERU	Total Stormwater Utility Fee	Stormwater District Tax Rate (2.0 Cents/$100 of assessed value)
$ 59,322,190	58,632.40	17.25	$91	$1,569	$11,864
$ 17,630,750	473,147.47	139.24	$91	$12,670	$3,526
			TOTAL	$14,239	$15,390

COMPARING RESIDENTIAL PARCELS

Assessed Value	Impervious Area (square feet)	Number of Equivalent Residential Units ERU=3398/sq.ft.)	Billing Unit Rate/ERU	Total Stormwater Utility Fee	Stormwater District Tax Rate (2.0 Cents/$100 of assessed value)
$357,110	2,768.29	0.81	$91	$73.71	$71.42
$493,130	3,034.14	0.89	$91	$80.99	$98.63
$764,630	6,989.57	2.06	$91	$187.46	$152.93
$1,045,950	7,825.76	2.30	$91	$209.30	$209.19
$6,703,430	16,498.72	4.86	$91	$442.26	$1340.69
		TOTAL	$455	$993.72	$1872.86

Philadelphia, Pennsylvania

The Philadelphia Water Department (PWD) relates a property's burden on the sewer system directly to its stormwater charge by using the property's individual characteristics as the basis for a stormwater utility fee. PWD does this by using Geographic Information Systems technology to measure a property's gross area and impervious area. Impervious area is classified as any surface that prevents water from soaking into the ground. Once PWD knows a property's gross and impervious area, they use this formula to calculate the stormwater charge:

Stormwater Charge = (Gross Area Rate * Gross Area of Property) +

(Impervious Area Rate * Impervious Area of Property)

To lessen the burden on customers who will see an increase in their bill, PWD is phasing in the new charge over a period of four years. Full implementation will be achieved at the beginning of 2015. The City estimates that when fully funded, the stormwater program will need and will generate more than $100 million annually.

Non-residential Properties Rate Structure

For all the ***non-residential*** properties, the monthly GA charge and IA charge are calculated *individually* for each property. The monthly GA charge and IA charge are calculated by multiplying a non-residential property's estimated GA and IA square footage by the corresponding GA and IA rates.

PWD has established a GA rate and an IA rate per 500 square feet for Fiscal Year (FY) 2011 and FY 2012 through the recently completed Rate Case process. Table 1 presents the GA and IA rates for the period FY 2011 through FY 2014 are subject to change.

Table 1 – GA Rate and IA Rate for FY 2011 to FY 2014

	FY 2011 July 1, 2010 – June 30, 2011		FY 2012 July 1, 2011 – June 30, 2012		FY 2013[a] July 1, 2012 – June 30, 2013		FY 2014[a] July 1, 2013 – June 30, 2014	
Description	GA	IA	GA	IA	GA	IA	GA	IA
System Unit Rate (per 500 sf)	$0.526	$4.145	$0.528	$4.169	$0.528	$4.169	$0.528	$4.169

Note:
a. The SWMS GA and IA rates defined for FY 2013 and beyond are subject to change.
sf = square feet

Monthly SWMS Charge Calculation

Below is a sample monthly SWMS charge calculation for a non-residential property under the City's system.

A. Non-Residential Properties

The monthly SWMS charge for a non-residential property is the **sum** of the monthly GA charge and the monthly IA charge. ***Note:**. A non-residential property's actual monthly GA and monthly IA charge depends on that individual property's GA and IA square footage as calculated by the City's GIS department.*

Monthly GA charge: Use the following steps to calculate the non-residential GA charge:

Step 1: Assume the following:

Property's **GA** square footage = 9,480 Square Feet

Monthly GA Rate = $0.526

Step 2: Compute **GA Units** as follows:

Divide 9,480 Square Feet by 500, and then round up the result to the next whole unit.

GA Units = 9,480 ÷ 500 = 19.00

Step 3: Compute **Monthly GA charge** as follows:

Multiply the GA Units (from Step 2) by the GA Rate (Step 1), and then round the result to two decimal places.

Monthly GA charge = 19.00 X $0.526 = $9.99

Monthly IA charge: The following steps are used to calculate the non-residential IA charge:

Step 4: Assume the following:

Property's **IA** square footage = 3,480 Square Feet

Monthly IA Rate = $4.145

Step 5: Compute **IA Units** as follows:

Divide 3,480 Square Feet by 500, and then round up the result to the next whole unit.

IA Units = 3,480 ÷ 500 = 7.00

Step 6: Compute **monthly IA charge** as follows:
Multiply the IA Units (from Step 2) by the GA Rate (Step 1), and then round the result to two decimal places.

Monthly IA charge = 7.00 X $4.145 = $29.02

Monthly SWMS charge: Use the following steps to calculate the monthly non-residential SWMS Charge:

Step 7: Compute **monthly SWMS charge** as follows:
Add the GA Charge (from Step 3) and the IA Charge (from Step 6).

Monthly SWMS charge = $9.99 + $29.02 = $39.01

SWMS Credits for Commercial and Condominiums
Commercial and condominium owners can obtain credits to reduce their fees. Customers on a Non-residential or Condominium parcel with at least Five-Hundred (500) square feet of gross area and whose water, sewer, and SWMS accounts(s) are not past due are eligible to apply for credits.

Classes of Credits
PWD currently offers the following three classes of credits:

- Impervious Area Stormwater Credit (IA Credit)
- Gross Area Stormwater Credit (GA Credit)
- National Pollutant Discharge Elimination System Credit (NPDES Credit) for industrial stormwater discharge activities

Depending on the types of SMPs present on the property, and whether the customer holds a valid industrial NPDES permit for the site, a parcel may be eligible for all three classes of credits.

Impervious Area Reductions (IARs)
PWD currently offers IARs for the following five categories:

- Tree Canopy Cover
- Roof Leader/Downspout Disconnections
- Pavement Disconnections
- Green Roofs
- Porous Pavement

IARs result in a direct reduction of the billable IA on a parcel. The customer must demonstrate that the IARs calculated on the parcel meet the requirements defined below.
Note: PWD use of IARs require ongoing maintenance in order to maintain their effectiveness and are subject to renewal requirements.

Impervious Area Stormwater Credit
To be eligible for IA Credit, the customer must demonstrate applicable management of the first inch of runoff from impervious areas on a property.

As defined in the PWD Regulations, management of the first inch of runoff can be achieved by employing SMPs that manage runoff in one of the three following ways:

- Infiltration
- Detention and slow release
- Volume reduction and filtration

The Table below presents the IA stormwater management options that are available to commercial and condominium owners based on the discharge location of the parcel:

Table 1 – Impervious Area Management Practice by Discharge Location

Management Practice (SMP) / Discharge Location	Combined Sewer Areas	Separate Sewer Areas
Infiltrate first 1" of runoff	✓	✓
Detain and slow-release the first 1" of runoff	✓	
Route the first 1" of runoff through an approved volume-reducing practice		✓

Gross Area Stormwater Credit

Two options are available to customers to receive GA Credit.

- Option 1: Management of the First-Inch of Runoff (Impervious Area Only)
  GA Credit is automatically achieved when a parcel is approved for IA Credit through management of the first inch of runoff. The area that receives IA Credit will also receive an equivalent amount of GA Credit for the land area underneath the IA.

- Option 2: GA Credit Based on NRCS-CN (Open Space Only)
  This option is only applicable to the open space of a parcel. Under this option, the customer must demonstrate a Natural Resource Conservation Service Curve Number (NRCS-CN) that meets one of the values contained in the Curve Number Scale found in PWD manuals. The CN represents the runoff potential for a particular soil and ground cover. A percent reduction is applied for each whole number below a CN of 75. A CN of 55 may yield the maximum applicable GA Credit. The percent reduction that is applied varies depending on a property's discharge characteristics and the existence of a NPDES permit for industrial stormwater discharge activities.

Credits expire four years from their effective date. The customer must submit a credits renewal application at least thirty (30) days before the expiration date to renew the stormwater credits. The approved credits renewal is effective on the expiration date of the original credit.

Residential Rate Structure

For all the ***residential*** properties, PWD has developed a uniform monthly SWMS charge that includes a *fixed* GA charge and a *fixed* IA charge. PWD has established a GA rate and an IA rate per 500 square feet for Fiscal Year (FY) 2011 and FY 2012 through the recently completed Rate Case process. Table below presents the GA and IA rates for the period FY 2011 through FY 2014. The GA and IA rates presented for FY 2013 and FY 2014 are subject to change by the City.

Table 1 – GA Rate and IA Rate for FY 2011 to FY 2014

	FY 2011 July 1, 2010 – June 30, 2011		FY 2012 July 1, 2011 – June 30, 2012		FY 2013[a] July 1, 2012 – June 30, 2013		FY 2014[a] July 1, 2013 – June 30, 2014	
Description	GA	IA	GA	IA	GA	IA	GA	IA
System Unit Rate (per 500 sf)	$0.526	$4.145	$0.528	$4.169	$0.528	$4.169	$0.528	$4.169

Note:
a. The SWMS GA and IA rates defined for FY 2013 and beyond are subject to change.
sf = square feet

The SWM fee is calculated in the same manner as the non-residential rates, but based on a fixed fee structure outlined above. That then results in the rates outlined in the table below.

Table 2 presents the Residential Monthly SWMS Charge for FY 2011 through FY 2014.

Table 2 – Uniform Monthly Residential Stormwater Charge

Description	FY 2011	FY 2012	FY 2013[a]	FY 2014[a]
Monthly SWMS Charge	$10.99	$11.06	$11.06	$11.06

Note:
a. The Uniform Monthly Residential SWMS charges defined for FY 2013 and beyond are subject to change.

Overview of Benefits of Utility Tax vs. Tax Service District

- Tax service district requires less overhead.
- Easy start up tax service district.
- Tax service district self inflates (with property values), should not require inflationary rate hikes.
- Tax service district is tax deductible for property owners.
- Utility tax/fee allows for financial incentives.
- Utility tax/fee removes revenue from "Tax Rate" comparisons.

- Utility tax/fee allows for revenue based borrowing.
- Utility tax/fee allows for billing Tax Exempt properties.
- Utility rates are based on impervious area.

District of Columbia

Stormwater Retention Credits Overview

General details on the eligibility requirements for certification of Stormwater Retention Credits (SRCs); the administrative process for certifying SRCs; the format for SRC serial numbers; the consequences for failure to maintain SRC-generating retention capacity; buying and selling SRCs; and voluntary retirement of SRCs is described below. An explanation on how to calculate SRCs using DDOE's calculator spreadsheet and some example calculations are also presented.

The following backgroundmay be helpful in reviewing this chapter:

- One Stormwater Retention Credit (SRC) is equal to one gallon of retention capacity for one year.
- One SRC can be used by a major regulated project to achieve one gallon of its Off-Site Retention Volume (Offv) for one year.
- The clock starts on an SRC's one-year lifespan when it is used to satisfy an Offv.
- An unused SRC can be banked for future use without expiring.
- An SRC can be traded.
- An SRC can be voluntarily retired without being used.

Eligibility Requirements

DDOE will certify Stormwater Retention Credits (SRCs) for eligible stormwater Best Management Practices (BMPs) and land cover in the District of Columbia. To be eligible, the retention capacity in a BMP or land cover must do the following:

- Achieve retention volume in excess of regulatory requirements or existing retention, but less than the SRC ceiling;
- Be designed and installed in accordance with a DDOE-approved Stormwater Management Plan (SWMP) and the Stormwater Management Guidebook;
- Pass a post-construction inspection and ongoing maintenance inspections; and
- Provide a maintenance contract or maintenance agreement(s) for ongoing maintenance.

In addition, retention capacity installed must have been installed after May 1, 2009 in order to be eligible.

Eligibility Requirements: Retention Volume

To be eligible, retention capacity must achieve retention in excess of stormwater management regulatory requirements or, for unregulated sites, in excess of existing retention.

For sites required to achieve a Stormwater Retention Volume (SWRv), eligible retention volume is the volume achieved in excess of the SWRv, but less than the SRC ceiling as shown in Figure 7.1.

For sites required to treat a water quality treatment volume (prior to establishment of SWRv requirements), eligible retention volume is the volume retained in excess of the stormwater treatment requirements in place at that time. For example, for a regulated site that provided treatment for the 0.5-inch storm by installing BMPs capable of retaining the 0.9-inch storm, the eligible retention volume would be the difference between the 0.9-inch storm volume and the 0.5 -inch storm volume (i.e., 0.4-inch storm volume).

For sites that are unregulated or that would only trigger the regulations because of the voluntary installation of retention capacity, eligible retention volume is the volume achieved in excess of existing on-site retention, as shown in Figure 7.1.

Guidance on calculating volume eligibility of retention capacity for certification of SRCs is below, and an SRC calculation spreadsheet is available on DDOE's website.

Eligibility Requirements: Design and Installation

To be eligible for SRC certification, retention BMPs or land covers must be designed and installed according to a DDOE-approved SWMP, with an as-built SWMP submitted to DDOE.

DDOE recognizes that some retention capacity, voluntarily installed prior to the establishment of retention standards, was installed without obtaining DDOE approval of a SWMP prior to installation. This retention capacity may still be eligible to earn SRCs. In such cases, DDOE will require an as-built SWMP stamped by a professional engineer licensed in the District of Columbia, as well as documentation of existing site conditions prior to the installation of the retention capacity. DDOE will consider such Applications for Certification of SRCs on a case- by-case basis and will determine eligible retention capacity in accordance with the specifications in this Stormwater Management Guidebook.

Eligibility Requirements: Inspection

To be eligible for SRC certification, retention BMPs and land cover must pass DDOE's post-construction inspection and continue to pass inspections on an ongoing basis. DDOE typically inspects BMPs every three years but may also conduct unscheduled inspections of retention capacity, on a random basis or as a result of a potential problem that is identified by DDOE staff or the public.

Eligibility Requirements: Maintenance

To be eligible for SRC certification, retention capacity must be maintained in good working order, as specified by DDOE. To demonstrate the commitment to maintenance, the applicant must submit a current maintenance contract for the time period for which SRC certification is requested. Alternatively, applicants planning to conduct this maintenance themselves must sign a maintenance agreement detailing the plan for maintenance. The applicant will submit the maintenance contract or agreement as an attachment to the application for certification of SRCs.

Certification of Stormwater Retention Credits

DDOE will accept applications for certification of SRCs once the regulations related to certification and ownership of SRCs are finalized in the D.C. Register. Required supporting documentation for the initial application includes the completed SRC calculation spreadsheet, as-built SWMP, and signed maintenance agreement or contract. Applications for retention capacity installed without prior DDOE approval of a SWMP must also provide documentation of site conditions prior to installation, including land cover type and existing retention BMPs. (See Chapter 2 and Appendix A for stormwater retention volume calculations.)

DDOE will review the application and supporting documentation to make a determination as to the number of SRCs to certify. DDOE will send its response to the proposed SRC owner who is listed on the application for certification. DDOE expects that the proposed SRC owner would very often be the owner of the retention capacity, but recognizes that this may not always be the case.

DDOE will certify up to three years' worth of SRCs for eligible retention capacity (the three-year period is based on DDOE's typical three-year inspection cycle). DDOE will assign each SRC a unique serial number for tracking purposes. At the end of that three-year period, the owner may apply for another three years' worth of SRCs. For example, for 1,000 gallons of eligible retention capacity, DDOE will certify up to 3,000 SRCs initially and an additional 3,000 SRCs at the beginning of each subsequent three-year period, as long as the eligibility requirements continue to be met.

An applicant should only apply for certification of SRCs corresponding to the period for which maintenance is planned. In applying for SRCs, an applicant commits to the maintenance of the retention capacity for the time period for which SRC certification is requested. Failure to maintain SRC-generating retention capacity is discussed below.

An applicant who wishes to have SRCs certified after the initial period of certification must re-submit an application for certification of SRCs. The required supporting documentation for this re-submittal is a current maintenance agreement or contract. DDOE expects to issue additional SRCs for retention capacity that has passed re-inspection and for which a current maintenance agreement or contract has been submitted.

Stormwater Fee Programs

District of Columbia residents are assessed a Stormwater Fee and Clean Waters Fee via their water bill each month. These fees are based on the amount of impervious surface found on the property and are collected by the District Department of the Environment (DDOE) and DC Water. Both entities will be implementing a discount program soon to help homeowners receive a reduction on both charges. DDOE will implement a 55% credit to the portion of effective impervious area removed through implementing stormwater management practices such as rain gardens, green roofs and rain cisterns.

The new Clean Rivers Impervious Area Charge (CRIAC) for DC Water is their method to distribute the cost of maintaining storm sewers and protecting area waterways based on a property's contribution of rainwater to the District's sewer system. Because charges are based on the amount of impervious area on a property, owners of large office buildings, shopping centers and parking lots will be charged more than owners of modest residential dwellings.

All residential and non-residential customers are billed for CRIAC. The FY 2013 monthly CRIAC is $9.57 per equivalent residential unit (ERU).

DC Water Residential Customers: Beginning in FY 2011, all residential customers will be assessed ERUs based upon the amount of impervious surface on their property and the following six-tier rate structure:

Impervious Area (Square Feet)	ERU	ERU Rate	Monthly Cost
100-600	0.6	$9.57	$5.74
700-2,000	1.0	$9.57	$9.57
2,100-3,000	2.4	$9.57	$22.97
3,100-7,000	3.8	$9.57	$36.37
7,100-11,000	8.6	$9.57	$82.30
11,100 and more	13.5	$9.57	$129.20

All nonresidential customers are assessed ERUs based on the total amount of impervious surface on each lot (divided by 1,000).

As an example, a commercial property with 4,800 square feet under roof, the following chart details the potential discount on Stormwater and CRIAC fees (assuming both DDOE and DC Water offer a 55% credit) that property owners will realize if the entire recommended area is treated in the rain garden (4,800 square feet).

Year	DC Water Fee	DDOE Stormwater Fee	Annual DC Water Charge*	Annual DDOE Charge	Total Annual Charges	Maximum Annual Discount**	Cumulative Discount
2013	$9.57	$2.67	$551.23	$153.79	$705.02	$387.76	$387.76
2014	$12.77	$2.67	$735.55	$153.79	$889.34	$489.14	$876.90
2015	$18.27	$2.67	$1,052.35	$153.79	$1,206.14	$663.38	$1,540.28
2016	$21.23	$2.67	$1,222.85	$153.79	$1,376.64	$757.15	$2,297.43
2017	$23.99	$2.67	$1,381.82	$153.79	$1,535.62	$844.59	$3,142.02
2018	$26.36	$2.67	$1,518.34	$153.79	$1,672.13	$919.67	$4,061.69
2019	$29.76	$2.67	$1,714.18	$153.79	$1,867.97	$1,027.38	$5,089.07
2020	$29.76	$2.67	$1,714.18	$153.79	$1,867.97	$1,027.38	$6,116.45
2021	$29.76	$2.67	$1,714.18	$153.79	$1,867.97	$1,027.38	$7,143.83
2022	$29.76	$2.67	$1,714.18	$153.79	$1,867.97	$1,027.38	$8,171.21
2023	$29.76	$2.67	$1,714.18	$153.79	$1,867.97	$1,027.38	$9,198.59
2024	$29.76	$2.67	$1,714.18	$153.79	$1,867.97	$1,027.38	$10,225.97
2025	$29.76	$2.67	$1,714.18	$153.79	$1,867.97	$1,027.38	$11,253.35

*The impervious area treated is 4,800 square feet, or 4.8 ERUs
**Assuming a 55% discount

Stormwater Taxes/Fee Survey – 2010

(Conducted by The Metropolitan Washington Council of Governments)

Municipality	Tax/Fee	Date	Annual Amount			Avg. Single Family
			Single-Family	Multi-Family	Commercial	Pays Annually
Prince Georges County 1.	Tax	1986	5.4 cents/ $100 Assessed Value	5.4 Cents/ $100 Assessed Value	5.4 cents/ $100 Assessed Value	
Fairfax County	Tax	2009	1.5 cents/ $100 Assessed Value	1.5 cents/ $100 Assessed Value	1.5 cents/ $100 Assessed Value	$64
Arlington County	Tax	2009	1.3 cents/ $100 Assessed Value	1.3 cents/ $100 Assessed Value	1.3 cents/ $100 Assessed Value	$74
City of Alexandria 2.	Tax	2010	.5 cent/ $100 Assessed Value	.5 cent/ $100 Assessed Value	.5 cent/ $100 Assessed Value	$61.00
Bowie	Tax	1988	Not Charged	Not Charged	$.002-$.06 / $100 Assessed Value	$0
City of Manassas Park 2.	Fee	2010	$35.60	$26.70	$35.60 per ERU	$35.60
Takoma Park	Fee	2003	$48	(IMP Area Total/ ERU)*$48	(IMP Area Total/ ERU)*$48	$48
Rockville	Fee	2008	$49.20	Varies Based on ERU	Varies Based on ERU	$49.20
District of Columbia	Fee	2001	$30.84 per ERU	Varies Widely	Varies Widely	$30.84
Prince William County	Fee	1994	SFR: $26.36 townhomes & condos: $19.77		$12.80 per 1,000ft^2 IMP	$26.36
Montgomery County 3.	Tax	2002	$49	Varies Based on ERU	Varies Based on ERU	$49

1. Prince Georges County also includes Bladensburg, College Park, and Greenbelt under the County stormwater permit.
2. The city of Manassas Park and the City of Alexandria do not begin collecting the stormwater fee/tax until FY 2011.
3. Montgomery County also includes Gaithersburg within the County stormwater permit.

Pros and Cons

Setting Up a Stormwater Utility, Stormwater District, or Maintaining A Dedicated Amount From Tax Revenues

(Source: Fairfax County DPW)

Dedicated Amount (1 cent) from Tax Revenues	
Pro	**Con**
Maintaining the penny fund requires no additional programs or effort	Stormwater is prioritized with other general fund programs (the County funds operating costs out of the Stormwater penny fund which reduces the available funding for capital projects)

Stormwater Utility Tax	
Pro	**Con**
This is a standard utility approach that allocates costs based on customer contribution to the system needs	This approach is expensive to establish (each non-single family residential property and commercial property needs to be evaluated to establish the fee)
This is the approach typically recommended by regulatory agencies because with a utility, the rates are adjusted regularly to support the service level requirements. A stormwater utility uses the model in place for wastewater and drinking water utilities which are created as fees for service and removed from the general tax base	This approach is expensive to administer and requires a separate billing system, as well as staff to administer and update each new property
This approach allows for a credit program to encourage individuals to better manage runoff from their properties	Smaller single family residential units typically pay the same rate as larger units with more impervious areas
This approach would provide a steady dedicated funding stream for the stormwater program	

Note: Utility Fees are typically charged to everyone that drains into the system including those properties that are currently tax exempt, such as churches.

Stormwater Service District	
Pro	**Con**
This approach is relatively easy and cost effective to establish and administer, by utilizing the existing property tax system	This approach is not based on impervious area or contribution to stormwater runoff
This approach provides a dedicated funding source and each property owner can become aware of costs to manage stormwater	This approach is not designed to provide incentives
As with other property taxes, this fee is deductible on income taxes (utility fees are not)	Higher valued properties with relatively smaller impervious areas pay more than lower valued properties with higher impervious areas
The dedicated funding source is budgeted in a separate Special Revenue Fund and revenues cannot be used for anything other than the Stormwater Program	
Demonstrates to the EPA that the County has provided a dedicated funding source to meet stormwater management requirements	

GWRC Addition

Stormwater Program Financing Models in Virginia

GWRC staff compiled a reference chart (below) of known stormwater program financing approaches currently used in Virginia as well as citations to additional case study papers on stormwater program financing available on the INternet. The following list is not considered complete and subject to further review and additions but is noteworthy that the majority of identified communities have applied the stormwater utility tax model.

Locality	Dedicated Tax Levy	SW Utility Tax	SW Service District	Other
Northern Virginia				
Alexandria City		1[i]		
Arlington Co			2[ii]	
Fairfax Co	3[iii]			
Falls Church City		4[iv]		

Locality	Dedicated Tax Levy	SW Utility Tax	SW Service District	Other
Prince William Co		17[xvi]		
Central Virginia				
Lynchburg City		5[v]		
Richmond City		6[vi]		
Tidewater Virginia				
Chesapeake City		7[vii]		
Hampton City		13[xii]		
Newport News City		14[xiii]		
Norfolk City		15[xiv]		
Portsmouth City		16[xv]		
Virginia Beach City		18[xvii]		
Other Areas (Case Studies)				8[viii], 9[ix],10[x], 11[xi], 12[xii]

Hyperlink References:

1)[i] http://alexandriava.gov/uploadedFiles/Stormwater%20Utility%20Fees.pdf
2) [ii] http://www.arlingtonva.us/departments/EnvironmentalServices/Sustainability/page73582.aspx
3) [iii] http://www.fairfaxcounty.gov/dpwes/stormwater/
4) [iv] http://www.fallschurchva.gov/Content/Government/Departments/PublicWorks/StormwaterFloodplain/2013Docs/FC_SW_FAQ.pdf
5) [v] http://www.slideshare.net/CleanH2O/3stormwater-financing-mechanisms-erin
6) [vi] http://www.richmondgov.com/dpu/stormwaterutility.aspx
7) [vii] http://www.cityofchesapeake.net/Government/City-Departments/Departments/Public-Works-Department/Divisions/stormwatermanagement/stormwatermanagement-stormwaterutilityfee.htm
8) [viii] http://www.nafsma.org/Guidance%20Manual%20Version%202X.pdf
9) [ix] http://www.nrdc.org/water/pollution/storm/chap4.asp
10) [x] http://stormwaterfinance.urbancenter.iupui.edu/Bibliocs.htm
11) [xi] http://www.stormh2o.com/SW/Articles/Trends_in_Stormwater_Utility_Implementation_17636.aspx
12) [xii] http://allaboutwatersheds.org/groups/RCWP/resources/091222_Ch2Mhill_Cmparative_Analysis_of_Stormwater_Programs_memo.pdf
13) [xii]http://hampton.gov/FAQ.aspx?TID=58
14) [xiii]http://www.nngov.com/public-works/storm/stwfund
15) [xiv]http://www.norfolk.gov/DocumentCenter/View/3042
16) [xv]http://www.portsmouthva.gov/publicworks/stormwater/utilityfee.aspx
17) [xvi]http://www.pwcgov.org/government/dept/publicworks/environment/Pages/Storm-Water-Management-Fee.aspx
18) [xvii] http://www.vbgov.com/government/departments/public-utilities/customer-service/pages/billing-faqs.aspx

ATTACHMENT 2.B.3

MEMORANDUM

AQUALAW

TO: **George Washington Regional Commission**
Regional Stormwater Technical Committee

FROM: **Christopher D. Pomeroy**

DATE: **_____, 2013 (5/2/13 DRAFT)**

RE: **Local Stormwater Programs: Funding Questions**

INTRODUCTION

This memorandum responds to questions posed by the Commission's Regional Stormwater Technical Committee (the "GWRC Stormwater Committee") regarding local stormwater program funding, including questions related to the statewide fee schedule under the Virginia Stormwater Management Program ("VSMP") Permit Regulations (the "VSMP Regulations") and options thereunder as well as additional potential strategies to meet the revenue requirements for local stormwater management. This memorandum may be updated and expanded to address additional questions based on the interest and needs of the GWRC Stormwater Committee.

CHARGING E&S FEES IN ADDITION TO, OR IN COMBINATION WITH, VSMP FEES

The GWRC Committee asked whether VSMP fees may be charged in addition to and/or in combination with fees authorized under the Erosion and Sediment ("E&S") Control Law. The answer is yes to both parts of the question. VSMP fees may be charged in addition E&S fees, and the two fees may be combined at the locality's option.

The E&S statute authorizes localities to charge E&S fees to defray the cost of program administration. Va. Code § 10.1-562 J. E&S fees shall not exceed "an amount commensurate with the services rendered." Va. Code § 10.1-562 J.

In addition, localities are authorized to charge E&S fees "in addition to any fee charged for administration of a Virginia stormwater management program," and may choose to consolidate E&S and VSMP fees "to provide greater convenience and efficiency for those responsible for compliance with the programs." Va. Code § 10.1-562 J.

Though the VSMP statute does not address this issue in detail, it similarly provides the "VSMP authority" (localities) the authority to "consolidate such [VSMP] fees with other program-related charges." Va. Code § 10.1-603.4 A 5 b.

In addition, the VSMP statute provides that a locality's consolidation of its VSMP and E&S fees would not affect (increase or decrease) the State share of the VSMP statewide base fee schedule. Va. Code § 10.1-603.4 A 5 b; *see also* 4 VAC 50-60-780 B (tying the State share to 28% of the statewide fee schedule, not higher or lower local fees).

The VSMP Regulations provide that "[n]othing in this part shall prohibit a locality from establishing other local fees authorized by the Code of Virginia related to stormwater management within their jurisdictions." 4 VAC 50-60-700.

Lastly, in promulgating the final VSMP Regulations, the Virginia Soil and Water Conservation Board received the following comment on the Proposed Regulation: "Not clear on whether the proposed fees are just for the stormwater management regulations or if they would incorporate E&S fees." To this comment, he Board correctly responded: "The fees established by the regulations solely address the VSMP (stormwater management) program. They do not include nor displace fees for other programs, such as Erosion and Sediment Control."

OTHER REVENUE OPTIONS (STORMWATER UTILITIES, SPECIAL DISTRICTS, ETC.)

The GWRC Committee asked about additional fee options, including whether localities are authorized to impose (a) impervious area fees and (b) plastic bag fees or taxes to support their stormwater management programs. The answers are: (a) yes, localities have authority to charge fees based on impervious area as discussed below, and (b) no, localities do not have the authority to impose bag fees or taxes. The primary alternatives discussed below are Stormwater Utilities, Service Districts, and Sanitary Districts.

Stormwater Utilities (Including Impervious Area Fee Approach)

Va. Code § 15.2-2114 authorizes any locality to establish a utility or enact a system of service charges to support a local stormwater management program.

Income derived from a utility or system of charges may not exceed the actual costs incurred by a locality operating such utility or system and may be used only to pay or recover the costs of the exercise of eminent domain; planning, design and construction; administration, operation and maintenance; monitoring stormwater devices and water quality monitoring; and other consistent activities. Va. Code § 15.2-2114 A.

Fees may be assessed on property owners or occupants, including condominium unit owners or tenants (when the tenant is the party to whom the water and sewer service is billed). Va. Code § 15.2-2114 B.

Fees must be based upon an analysis that demonstrates the rational relationship between the amount charged and the services provided. Va. Code § 15.2-2114 B. Impervious area, typical expressed as Equivalent Residential Units ("ERUs") is a common method for apportioning fees in accordance with this requirement.

A locality adopting such a system must waive charges for public entities that hold a MS4 permit and public roads and street rights-of-way. Va. Code § 15.2-2114 C.

A locality must provide for full or partial waivers of charges to any person who installs, operates, and maintains a permitted stormwater management facility that achieves a permanent reduction in stormwater flow or pollutant loadings. The locality must base the amount of the waiver in part on the percentage reduction in stormwater flow or pollutant loadings, or both, from pre-installation to post-installation of the facility. Va. Code § 15.2-2114 D.

In addition, the locality may provide for full or partial waivers of charges to cemeteries, property owned or operated by the locality administering the program, and public or private entities that implement or participate in strategies, techniques, or programs that reduce stormwater flow or pollutant loadings, or decrease the cost of maintaining or operating the public stormwater management system. Va. Code § 15.2-2114 E.

Stormwater service charges are a fee, not a tax. 2010 Op. Va. Att'y Gen. 56; 2010 Op. Va. Att'y Gen. 61. Federal property is not exempt from stormwater charges. P.L. No. 111-378.

Potential advantages of a stormwater utility include (1) opportunities to provide financial incentives to property owners (credits and waivers); (2) less susceptible to "tax rate" comparisons (compared to service district option below); revenue-based borrowing; billing of tax-exempt properties (if desired), e.g., such as federal and state property.

Numerous Virginia localities have established stormwater utilities based on this authority including:

Charlottesville: http://www.charlottesville.org/index.aspx?page=562

Chesapeake: http://www.cityofchesapeake.net/Government/City-Departments/Departments/Public-Works-Department/Divisions/stormwatermanagement/stormwatermanagement-stormwaterutilityfee.htm

Hampton: http://hampton.gov/FAQ.aspx?TID=58

James City County:
http://www.jccegov.com/pdf/devtmgmtpdfs/StormwaterFacts2_23_07.pdf

Lynchburg: http://www.lynchburgva.gov/stormwater-management

Newport News: http://www.nngov.com/engineering/resources/swmcharge

Norfolk: http://www.norfolk.gov/DocumentCenter/View/3042

Portsmouth: http://www.portsmouthva.gov/publicworks/stormwater/utilityfee.aspx

Prince William County:
http://www.pwcgov.org/government/dept/publicworks/environment/Pages/Storm-Water-Management-Fee.aspx

Richmond: http://www.richmondgov.com/PublicUtilities/StormwaterUtility.aspx

Staunton:
http://www.staunton.va.us/directory/departments-a-g/city-engineer/stormwater

Suffolk: http://www.suffolkva.us/pub_wks/engineering-stormwater

Virginia Beach: http://www.vbgov.com/government/departments/public-utilities/customer-service/pages/billing-faqs.aspx

Service Districts

Localities may create special service districts as a mechanism to provide certain additional services or infrastructure such as stormwater management that will be paid for by those who benefit. Statutory authority for special service districts is found in Va. Code §§ 15.2-2400 to -2403.3. Any locality may create a special service district by ordinance. Va. Code § 15.2-2400. A service district is not a separate political subdivision.

Va. Code § 15.2-2403 grants a number of powers to the governing body of the locality for the provision of facilities and services with respect to a service district. The governing body may construct, maintain and operate facilities and equipment necessary or desirable to provide additional governmental services, including stormwater management. Va. Code §§ 15.2-2403 and -2403.3.

The locality is authorized to levy and collect an annual tax on property in the district to pay for the facilities and services authorized to be provided. Va. Code § 15.2-2403(6). Additionally, a locality may contribute from its general fund any amount of funds it deems appropriate to pay for the authorized governmental services. Va. Code § 15.2-2403(6).

Any town located within a stormwater service district is entitled to revenues collected within the town pursuant Va. Code § 15.2-2403(6) where the town maintains its own MS4 permit or maintains its own stormwater service district. Va. Code § 15.2-2403.3.

Potential advantages of a service district including (1) less overhead and faster start-up than typical stormwater utility due to basing fees on known property values rather than extensive GIS information regarding the impervious area of properties; (2) revenue escalates with property value increases thereby avoiding need for rate hikes to address inflation; (3) deductibility of taxes (as opposed to fees).

Fairfax County has adopted a Stormwater Service District and other localities reportedly considering this alternative as well.

Example: http://www.fairfaxcounty.gov/dpwes/stormwater/servicedistrict.htm

Bag Fees or Taxes

There is no provision in the Virginia Code expressly authorizing localities to collect plastic bag fees or to assess bag taxes. As such, local bag taxes or fees are prohibited under the Dillon Rule, which provides that a local government may not take actions, pass laws or ordinances, or levy taxes if they have not been specifically granted permission by the state's government or constitution. In fact, legislation authorizing the Commonwealth to levy a tax on plastic bags and depositing the revenue in the Virginia Water Quality Improvement Fund failed (again) during the 2013 General Assembly session. For additional information about plastic bag fees, taxes and bans, see the Metropolitan Council of Governments' *Plastic Bag Report 2012 Update* at http://www.mwcog.org/uploads/pub-documents/p15dWI820121105113857.pdf.

DCR'S FEE SHARE IN EVENT OF MORE STRINGENT LOCAL ORDINANCES

The VSMP statute requires the Soil and Water Conservation Board to establish by regulation "a statewide permit fee schedule to cover all costs associated with the implementation of a VSMP related to land-disturbing activities of ***one acre or greater***." Va. Code § 10.1-603.4 A 5 (emphasis added).

In addition, the statewide fee schedule must also include a provision for "a reduced fee for land-disturbing activities ***between 2,500 sq. ft. and up to 1 acre in the Chesapeake Bay Preservation Act area localities***." Va. Code § 10.1-603.4 A 5 (emphasis added).

The foregoing provisions expressly limit the Board's authority with respect to setting fees to land-disturbing activities that do not meet the applicable area threshold for a particular locality. Therefore, any fee for land-disturbing activities below these thresholds would be purely a local fee and would not be subject to the State share.

CONCLUSION

I hope you find these responses to the GWRC Stormwater Committee's questions to be informative and helpful. I would be glad to address them in more detail at a future Committee meeting or otherwise.

C.D.P.

ATTACHMENT 2.B.4

GEORGE WASHINGTON REGIONAL COMMISSION
STORMWATER TECHNICAL COMMITTEE
MAY 9, 2013

HB 2190 (2013)
More Stringent Ordinances

CHRIS POMEROY
MEMBER & PRESIDENT
AQUALAW

1

Overview

- **HB 2190 Background**
  - Origins and stated rationale
- **Review of HB 2190**
  - Scope and specific requirements
- **HB 2190 Implications**
  - Practical tips for implementing HB 2190
- **Other Authority**
  - Under Va. Code Titles 10.1 and 15.2

2

Local VSMP Authority Generally: §10.1-603.3 (Unchanged)

- E. Each locality…shall, by ordinance, establish a VSMP that shall be administered in conjunction with a local MS4 program and a local erosion and sediment control program where applicable, and which shall include, but is not limited to, the following:
  - 1. Consistency with regulations adopted in accordance with provisions of this article;
  - 2. Provisions for long-term responsibility for and maintenance of stormwater mgmt control devices…; and
  - 3. Provisions for the integration of the VSMP with local erosion and sediment control, flood insurance, flood plain management, and other programs …

3

More Stringent Ordinances: §10.1-603.7 A (Unchanged)

Statute

- Localities are authorized to adopt more stringent stormwater management ordinances than those necessary to ensure compliance with the Board's minimum regulations, **provided**…

Key Issue: Are you exercising this authority?

- On what authority is my provision based?
- §10.1-603.7 or other statute? (See list below)
- If other, this statute not applicable

4

§10.1-603.7 A (cont.)

Statute

- Localities are authorized to adopt more stringent stormwater management ordinances than those necessary to ensure compliance with the Board's minimum regulations, **provided**…

Key Issue: Is my provision "more stringent"?

- Technical design standards (Ex: P ≤0.41 lbs/ac/yr) – YES
- Other substantive provisions? ("Including but not ltd too")
- Procedural requirements? – NO

5

§10.1-603.7 A (cont.)

Statute

- **provided** that the more stringent ordinances are based upon
  - factual findings of local or regional comprehensive watershed management studies **or**
  - findings developed through the implementation of a MS4 permit **or**
  - a locally adopted watershed management study **and**

Key Issues: Scope & Opportunity

- This shows that §10.1-603.7 concerns tech issues
- Puts the locality in driver's seat on finding of need

6

§10.1-603.7 A (cont.)

Statute

- **and** are determined by the locality to be necessary
  - to prevent any further degradation to water resources,
  - to address TMDL requirements,
  - to protect exceptional state waters, or
  - to address
    - existing water pollution incl nutrient & sediment loadings,
    - stream channel erosion,
    - depleted groundwater resources, or
    - excessive localized flooding within the watershed [and hold public hearing prior]

Broad Scope of Authority for Stormwater Mgmt

- Degradation generally, pollutants, erosion, GW, and flooding

7

DCR Review of Ordinances: New §10.1-603.7 B

Statute

- Localities shall submit a letter report to the Department when more stringent stormwater management ordinances or more stringent requirements authorized by such ordinances, such as may be set forth in design manuals, policies, or guidance documents developed by the localities, are determined to be necessary pursuant to this section within 30 days after adoption thereof. Any such letter report shall include a summary explanation as to why the more stringent ordinance or requirement has been determined to be necessary pursuant to this section.

Key Issues: Documentation & Disclosure

- For requirements adopted under subsection A, locality already has documentation

8

New §10.1-603.7 B (cont.)

Statute

- Upon the request of an affected landowner or his agent submitted to the Department with a copy to the sent to the locality, within 90 days after adoption of any such ordinance or derivative requirement, localities shall submit the ordinance or requirement and all other supporting materials to the Department for a determination of whether the requirements of this section have been met [SECTION A] **and** whether any determination made by the locality pursuant to this section is supported by the evidence.

Key Issue: Review Is Limited

- 90 day deadline avoids open-ended exposure
- Standard of State review intended to be easy to meet ("supported by evidence", not State's preference)

9

New §10.1-603.7 B (cont.)

Statute

- The Dept. shall issue a written determination setting forth its rationale within 90 days of submission. Such a determination, or a failure by the Department to make such a determination within the 90-day period, may be appealed to the Board.

Key Issues for Administrative Appeal:

- Administrative appeal to State Water Control, where there is a long history of SWCB deferring to locality decisions, rather than attempting to second guess them
- These multiple layers of review must be tedious for a permit applicant (developer) to undertake, so that should discourage frivolous reviews and challenges

10

BMP Provisions: New §10.1-603.7 C

Statute

- Localities shall not prohibit or otherwise limit the use of any best management practice (BMP) approved for use by the Director or the Board except as follows:
  - [Site-Specific Provision]
  - [Jurisdiction-Wide or Geographical Limits]

11

New §10.1-603.7 C (cont.)

Site-Specific Provision

- When the Director or the Board approves the use of any BMP in accordance with its stated conditions, the locality serving as a VSMP authority shall have authority to preclude the onsite use of the approved BMP, or to require more stringent conditions upon its use, for a specific land-disturbing project based on a review of the stormwater management plan and project site conditions. Such limitations shall be based on site-specific concerns.

Key Issue: High Locality Discretion at Site Level

- Broad locality authority for ***site-specific*** decisions

12

New §10.1-603.7 C (cont.)

Site-Specific Provision (cont.)

- Any project or site-specific determination purportedly authorized pursuant to this subsection may be appealed to the Department and the Department shall issue a written determination regarding compliance with this section to the requesting party within 90 days of submission. Any such determination, or a failure by the Department to make any such determination within the 90-day period, may be appealed to the Board.

Key Issues: Review Process

- Locality's "compliance" requirements (see previous slide) appear to be low / easily satisfied
- Again, review process would be tedious for permit applicant, so that should discourage frivolous challenges

13

New §10.1-603.7 C (cont.)

Jurisdiction-Wide/Geographical Limits

- When a locality is seeking to uniformly preclude jurisdiction-wide or otherwise limit geographically the use of a BMP approved by the Director or Board, or to apply more stringent conditions to the use of a BMP approved by the Director or Board, upon the request of an affected landowner or his agent submitted to the Dept., with a copy submitted to the locality, within 90 days after adoption, such authorizing ordinances, design manuals, policies, or guidance documents developed by the locality that set forth the BMP use policy shall be provided to the Dept. in such manner as may be prescribed by the Dept. that includes a written justification and explanation as to why such more stringent limitation or conditions are determined to be necessary.

Similar to Subsection B review (discussed above)

14

New §10.1-603.7 C (cont.)

Jurisdiction-Wide/Geographical Limits (cont.)

- The Dept. shall review all supporting materials provided by the locality to determine whether the requirements of this section have been met **and** that any determination made by the locality pursuant to this section is reasonable under the circumstances. The Dept. shall issue its determination to the locality in writing within 90 days of submission. Such a determination, or a failure by the Dept. to make such a determination within the 90-day period, may be appealed to the Board.

Key Issue: Review Standard Defers to Locality

- Under reasonableness standard, State must defer to a locality decision unless it is unreasonable (even if State agency would have made a different choice)

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Grandfathering
Amended §10.1-603.7 E

Statute

- Any provisions of a local stormwater management program in existence before January 1, 2013, that contains more stringent provisions than this article shall be exempt from the requirements of this section. However, such provisions shall be reported to the Board at the time of the locality's VSMP approval package.

Key Issue: Claiming This Exemption Effectively

- Claim exemption specifically for key provisions
- Claim it generally too ("all other more stringent provisions in effect prior to Jan. 1, 2013")

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Appendix of Additional Sources of Local Authority

- **Standards for Use and Services of Sewers**
  - Va. Code § 15.2-2122
- **Land Subdivision & Development**
  - Va. Code § 15.2-2241
- **Erosion & Sediment Control Law**
  - Va. Code § 10.1-570

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Standards for Use and Services of Sewers (Va. Code § 15.2-2122)

Statute

- For the purpose of providing relief from pollution, and for the improvement of conditions affecting the public health, and in addition to other powers conferred by law, any locality shall have the power and authority to: ...
- 10. Establish standards for the use and services of sanitary, combined and stormwater sewer systems .... Such standards may be implemented by ordinances....

Comments

- Broad authority governing storm sewer use
- This section goes on to provide powerful, detailed enforcement procedures

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Land Subdivision & Development (Va. Code § 15.2-2241 A)

- A subdivision ordinance shall include reasonable regulations and provisions that apply to or provide: …
- 3. For adequate provisions for drainage and flood control, for adequate provisions related to the failure of impounding structures and impacts within dam break inundation zones, and other public purposes, and for light and air, and for identifying soil characteristics;
- 4. For the extent to which and the manner in which streets shall be graded, graveled or otherwise improved and water and storm and sanitary sewer and other public utilities or other community facilities are to be installed;

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Erosion & Sediment Control Law (Va. Code § 10.1-570)

- Authorizes more stringent regulations as part of a VESCP (provided there is similar technical basis as for stormwater requirements under §10-603.7)
- "However, this section shall not be construed to authorize any district or locality to impose any more stringent regulations for plan approval or permit issuance than those specified in §§ 10.1-563 and 10.1-565."
- Grandfathers provisions existing before July 1, 2012

20

Erosion & Sediment Control Law (Va. Code § 10.1-570)

- "Authorization for more stringent regulations."
- "As part of a VESCP"
- "more stringent soil erosion and sediment control regulations or ordinances than those necessary to ensure compliance with the Board's regulations"
- "provided that [they] are based upon factual findings"... AND
- "are determined by ... locality to be necessary to [address water quality, groundwater, erosion, flooding, etc.] "However, this section shall not be construed to authorize any district or locality to impose any more stringent regulations for plan approval or permit issuance than those specified in §§ 10.1-563 and 10.1-565."
- Grandfathers provisions existing before July 1, 2012

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QUESTIONS?

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ATTACHMENT 2.B.5

GEORGE WASHINGTON REGIONAL COMMISSION
STORMWATER TECHNICAL COMMITTEE PROJECT
AUGUST 28, 2013

Stormwater Ordinance Development Legal Issues

CHRIS POMEROY
MEMBER & PRESIDENT
AQUALAW

1

Presentation Outline

- **Regulatory Overview**
  - Federal & State Laws & Regulations
  - "Integration" & "Consolidation"
  - Key Stormwater Legal References
  - VSMP Program Basics
- **DEQ Review of Local Ordinances**
  - Timeline
  - Consistency Standard
  - Review Checklist

2

Presentation Outline (cont.)

- **Select Legal Issues**
  - Hearings, Appeals
  - Small Projects in Larger Common Plan of Development
  - Fee Flexibility & Adjustments
  - Grandfathering, Nutrient Offsets, Locality Compliance
- **Discussion**
  - Questions
  - Follow-up Issues / Process
- **Resource List**
- **Appendix A: More Stringent Ordinances Paper**

3

Regulatory Overview

4

Program	Regulator	Applicability
CWA Water Quality Standards ("WQS"): Goals for Ambient (Instream) Water Quality	DEQ Adopts; EPA Approves	All Surface Waters; Various Uses & Pollutants
CWA Total Maximum Daily Loads (TMDLs): Maximum Discharges Based on WQS	DEQ Adopts; EPA Approves (Except Bay – EPA Adopted)	Pollutant Impairing Surface Water (Water Body Fails to Meet WQS)
CWA NPDES Permit: Municipal Separate Storm Sewer System ("MS4") Permit	1. DEQ Permits/EPA Oversees; 2. DEQ Approves Locality Plans (Gen Prgm & TMDL Implement)	Owners and Service Areas of All Designated Phase I and Phase II MS4s
CWA NPDES Permit: Construction Gen Permit ("CGP") Covering Construction Period	DEQ Adopts; EPA Veto Opportunity	Operators Disturbing ≥1 Acre (or less as part of common plan of development ≥1 acre)
VA Erosion & Sediment Control Law ("E&S")	Locality Adopts/Admins Prgm; DEQ Oversees Localities	Operators Disturbing ≥ 10,000 sf (Construction)
VA Chesapeake Bay Preservation Act ("Bay Act")	Locality Adopts Local Program; DEQ Oversees Localities	Operators Disturbing ≥ 2,500 sf (Tidewater Only)
VA Stormwater Mgmt Act/Prgm ("VSMP")	Locality Adopts Local Program; DEQ Oversees Localities	Various Thresholds: Bay Act Areas: ≥ 2,500 sf Elsewhere: ≥ 10,000 sf (CGP) (Construction & Post-Constr.)

More Stringent Design Requirements for Development & Redevelopment

- **New Water Quality Criteria**
  - More stringent standard (0.41 lbs Phosphorus/acre/yr)
  - Applied statewide for first time (previous only Tidewater)
  - New "Runoff Reduction Method" promotes more LID and infiltration practices
- **New Water Quantity Criteria**
  - New "Energy Balance Method"
  - Protect stream channels, reduces sedimentation
- **New/Enhanced Local Program**
  - More BMPs required locally
  - Greater long-term maintenance issues for locality

6

VSMP Program Elements

- Stormwater Management Ordinance
- Funding and Staffing Plan
- Application/Fee Collection
- Review & Approval of E&S and SWM Plans
- Inspection Program & Certified Inspectors
- Compliance & Enforcement Process
- Reporting & Recordkeeping Procedures
- BMP Maintenance Requirements & Tracking
- DEQ Oversight / Program Compliance Review

7

"Integration" Bill (2012): Delegation to Localities

CWA Water Quality Standards ("WQS"): Goals for Ambient (Instream) Water Quality	DEQ Adopts; EPA Approves	All Surface Waters; Various Uses & Pollutants
CWA Total Maximum Daily Loads (TMDLs): Maximum Discharges Based on WQS	DEQ Adopts; EPA Approves (Except Bay – EPA Adopted)	Pollutant Impairing Surface Water (Water Body Fails to Meet WQS)
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CWA NPDES Permit: Construction Gen Permit ("CGP")	DEQ Adopts; EPA Veto Opportunity	Operators Disturbing ≥1 Acre (or less as part of common plan ≥1 acre) (Construction)
VA Erosion & Sediment Control Law ("E&S") (Construction)	Locality Adopts/Admins Prgm; DEQ Oversees Localities	Operators Disturbing ≥ 10,000 sf (Construction)
VA Chesapeake Bay Preservation Act ("Bay Act")	Locality Adopts Local Program; DEQ Oversees Localities	Operators Disturbing ≥ 2,500 sf (Tidewater Only) (Pre-, Construction, & Post-)
VA Stormwater Mgmt Act/Prgm ("VSMP")	**Locality Adopts Local Program**; DEQ Oversees Localities	Various Thresholds: Bay Act Areas: ≥ 2,500 sf Elsewhere: ≥ 10,000 sf (CGP) (Construction & Post-Constr.)

Impact of "Integration"

- **Move Work of Regulation to Local Level**
  - Shift from State Administration
  - To Local Administration
  - For Construction Site Permitting
- **Stated Benefits**
  - More Efficient "One Stop Shopping"
  - Higher Compliance Rates
  - Better Water Quality

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"Consolidation" Bill (2013): Transfer from DCR to DEQ

CWA Water Quality Standards ("WQS"): Goals for Ambient (Instream) Water Quality	DEQ Adopts; EPA Approves	All Surface Waters; Various Uses & Pollutants
CWA Total Maximum Daily Loads (TMDLs): Maximum Discharges Based on WQS	DEQ Adopts; EPA Approves (Except Bay – EPA Adopted)	Pollutant Impairing Surface Water (Water Body Fails to Meet WQS)
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VA Stormwater Mgmt Act/Prgm ("VSMP")	Locality Adopts Local Program; DEQ Oversees Localities	Various Thresholds: Bay Act Areas: ≥ 2,500 sf Elsewhere: ≥ 10,000 sf (CGP) (Construction & Post-Constr.)

Impact of "Consolidation"

- **Restores and Expands DEQ's Pre-2004 Role**
  - All water quality programs except Agriculture (part) at DEQ
- **Transition Issues During Critical Period**
  - DEQ is a full-time regulatory agency, whereas was a new, part-time regulator
  - This should benefit localities in the long run

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Post-"Consolidation" Statutes Effective July 1, 2013

- **Stormwater Management Act**
  - Was §§ 10.1-603.2 et seq.
  - Now §§ 62.1-44.15:24 et seq.
- **Erosion and Sediment Control Law**
  - Was §§ 10.1-560 et seq.
  - Now §§ 62.1-44.15:51 et seq.
- **Chesapeake Bay Preservation Act**
  - Was §§ 10.1-2100 et seq.
  - Now §§ 62.1-44.15:67 et seq.
- **Section-by-section cross-walk of changes**
  - http://www.deq.state.va.us/Programs/Water/StormwaterManagement.aspx

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Post-"Consolidation" Regulations Approved Aug. 27, 2013

- **Virginia Stormwater Management Prgm (VSMP) Regs**
  - Now 9VAC25-870 (Formerly 4VAC50-60)
- **GP for Discharges of SW from Construction Activities**
  - Now 9VAC25-880 (Formerly 4VAC50-60-1100)
- **GP for Discharges of Stormwater from Small MS4s**
  - Now 9VAC25-890 (Formerly 4VAC50-60-1200)
- **Ches Bay Preservation Area Designation/Mgmt Regs**
  - Now 9VAC25-830 (Formerly 4VAC50-90)
- **Erosion and Sediment Control Regulations**
  - Now 9VAC25-840 (Formerly 4VAC50-30)
- **E&S Control and Stormwater Mgmt Certification Regs**
  - Now 9VAC25-850 (Formerly 4VAC50-50)

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Challenges

- New Complex Technical Criteria and Program Start Up
- Heavy Degree of Overlap and Resulting Complexity
  - Ex: Cbay, MS4, E&S, Construction Permit, TMDLs
- Lots of Inspections
  - Ex: E&S (2 wks), SWM (quarterly), TMDL Conditions (More Inspections)
  - Ex: Long Term Maintenance
- Different Enforcement / Appeals / Penalties
- State Program Reviews and Compliance Audits
- Different Permitting Thresholds for Construction (next slide)

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Inconsistent Thresholds for Applicability

CWA Water Quality Standards ("WQS"): Goals for Ambient (Instream) Water Quality	DEQ Adopts; EPA Approves	All Surface Waters; Various Uses & Pollutants
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VA Chesapeake Bay Preservation Act ("Bay Act")	Locality Adopts Local Program; DEQ Oversees Localities	Operators Disturbing **≥2,500 sf** (Tidewater Only) (Pre-, Construction, & Post-)
VA Stormwater Mgmt Act/Prgm ("VSMP")	Locality Adopts Local Program; DEQ Oversees Localities	**Various** Thresholds: Bay Act Areas: ≥ 2,500 sf Elsewhere: ≥ 10,000 sf (CGP) (Construction & Post-Constr.)

Potential Solutions

- **Co-Regulator Relationship**
  - Build a Strong "Co-Regulator" Relationship (DEQ-Locality)
  - Collaborative environment for building programs
  - Supportive State reviews / audits
  - Practical, efficient, consistent answers / solutions
- **Program Phasing / Evolution Over Time**
  - Big picture first / risk-based approach
  - Focus on basic elements
    - Ex: Administration, Ordinances, Plan Reviews, Inspections
  - Clean, straightforward DEQ compliance audits
    - Based on reasonable expectations for stage of implementation

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DEQ Review Process for Local Ordinances

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Timeline

- **December 15, 2013**
  - Draft ordinance due to DEQ for review
- **Early 2014**
  - DEQ comment on draft ordinance
  - This is fast planned turnaround by DEQ (feasible?)
- **April 1, 2014**
  - Final ordinance due to DEQ for approval
  - Short turnaround expected of localities (feasible?)
- **July 1, 2014**
  - Deadline for start-up of local program (feasible?)

TIGHT TURNAROUND TIMES

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Model Ordinance

- **Housekeeping: Code References Are Outdated**
  - For both statute (Title 62.1) and regulations (9 VAC)
- **Drafting Issue: Who's Regulating Whom?**
  - Model is drafted from the perspective of state agency regulating a locality
  - Ordinance should directly state how the locality will regulate operators
  - Ordinance should authorize locality's actions but not regulate the locality itself
  - Ex: "The Administrator shall require…" versus "the applicant shall provide…"

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Model Ordinance

- **Model Ordinance is "Guidance" (Not Rule)**
  - "This document is provided as guidance … does not carry the force of law … provide[s] guidance to localities on the elements of a 'consistent' local ordinance."
- **Statutory Standard: "Consistency"**
  - "Each locality…shall, by ordinance, establish a VSMP … which shall include, but is not limited to, the following: 1. **Consistency with regulations adopted** …."
    - Va. Code § 62.1-44.15:27
- **No Written Guidance on "Consistency"**
  - But see Model Ordinance Review Checklist for insight

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DEQ's Ordinance Review Checklist

- **Latest Draft Checklist**
  - August 12, 2013 Draft
  - Available from GWRC
- **Still Outdated**
  - Statutory citations have been updated (Title 62.1)
  - But regulatory citations are outdated (4VAC vs. 9VAC)
- **But Useful for Learning DEQ's Expectations**
  - Consistency Review

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Tips for Locality's Submittal to DEQ

- Help your client by helping DEQ reach the right answer
- See "Review Strategy" to determine how much flexibility exists
- Provide your local ordinance citation to ease DEQ review
- Use "Comments" box where helpful to head off DEQ concern

	State Code/ Reg Citation	Description	Review Strategy	Local Code Citation	Comments/ Issues
1	4VAC50-60-20	Purpose: Describes purpose of local VSMP ordinance.	Verify that purpose of the ordinance is **described** and provides the **framework** for the administration, implementation and enforcement of the provisions of the Virginia Stormwater Management Act and to delineate the procedures and requirements to be followed in connection with permits issued by a the local VSMP authority.		

DEQ Ordinance Review Checklist & Nature of "Consistency" Determination

- **Typical Review: "Existence" of Provision**
  - Ex: "Verify requirement exists in the local ordinance"
- **Minimum Content Example: Definitions**
  - "The reviewer should ensure that these 33 definitions are included in the local ordinance. Additional definitions may be included but should be reviewed against the Regs. All definitions should be consistent with the Regs."
- **"Exact Match" Example: Exemptions**
  - "Must be phrased exactly like the Code to ensure proper interpretation. Determine if all 8 [exempt] activities are specified in the local ordinance...."

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Program	Regulator	Applicability
CWA Water Quality Standards ("WQS"): Goals for Ambient (Instream) Water Quality	DEQ Adopts; EPA Approves	All Surface Waters; Various Uses & Pollutants
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VA Stormwater Mgmt Act/Prgm ("VSMP")	Locality Adopts Local Program; DEQ Oversees Localities	Various Thresholds: Bay Act Areas: ≥ 2,500 sf Elsewhere: ≥ 10,000 sf (CGP) (Construction & Post-Constr.)

Select Legal Issues

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Formal Trial-Like Hearings

- **Statute**
  - Right to APA-style "formal" hearing (:44, :45)
  - Must be consistent with .26
    - Verbatim record; depositions; subpoenas of persons & documents
    - Witness fees and mileage expenses
- **Regulations**
  - Brief recitation of statutory references
- **Model Ordinance**
  - Largely restates the statute
- **Checklist**
  - Detailed
  - Requires verification the right to formal hearing exists
  - Requires conformance to .26 (depositions, subpoenas, etc)

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Hearings (cont.)

- **Observations**
  - Overkill for a local land development decisions
  - "Non-Integration" with E&S
- **More on E&S Statute…**
  - No requirements for formal hearings
  - "Final decisions" simply subject to review in circuit court
  - May have administrative appeals prior to "final decision" appealable in court

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Hearings (cont.)

- **Legislation Needed**
  - Discussed in DEQ's Checklist Development Committee
  - DEQ staff and others seemed receptive to conforming VSMP to E&S approach
- **Timing Issues**
  - Dec. 2013 draft ordinance / April 2014 final ordinance
  - Jan. 2014 Session / standard July 1 effective date
  - Conclusion: Need emergency bill
- **Recommendations**
  - Keep draft ordinances simple
  - Get issue on locality's legislative agenda

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Appeals

- **Statute (:46)**
  - Any permittee or party aggrieved (Article III standing) has right of judicial review of **State's** permitting & enforcement
  - "The provisions of the APA shall not apply to decisions rendered by localities but appeals shall be conducted in accordance with local appeal procedures"
  - No statement of right to judicial review of local decision
- **Regulation**
  - One sentence repeating the "local appeal procedure" bit
- **Model Ordinance**
  - No meaningful guidance
- **Checklist**
  - No meaningful guidance

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Appeals: Administrative Appeals

- **Whether to Have an Administrative Appeal**
  - Or have appeal proceed to circuit court
- **Potential Benefits**
  - Resolve disputes prior to circuit court appeal (if any)
  - Build more comprehensive administrative record prior to circuit court appeal (if any)
- **Options for Who Hears Administrative Appeals**
  - Council or Board of Supervisors
  - Manager or County Administrator
  - Department Director (other than VSMP Administrator)

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Appeals: Other Local Procedures

- **Define Standing to Appeal (:46)**
  - Not necessarily as broad as Article III standing
- **Availability of Judicial Review Unstated (:46)**
- **Local Procedures Related to Judicial Review**
  - Ex: Require exhaustion of administrative remedies (administrative appeal)
  - Ex: Provide for preparation and submittal of the administrative record to circuit court
  - Ex: State APA-like deferential std of review in ordinance

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Common Plan of Development Issue

- **Permitting Small Building Lots in Subdivisions**
  - Sites <1 acre part of larger common plan of development
  - By federal regulation, these sites typically require permit
- **Problem**
  - Big paperwork burden for many small, simple projects
- **Potential Solution**
  - Arkansas / Louisiana State Construction General Permit
  - Ex: Developer maintains permit for entire subdivision
  - Ex: Automatic coverage for small sites / std conditions
- **Status**
  - DEQ considering administrative solution in pending CGP

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Fees: Flexibility & Adjustments

- **VSMP Statute (:28 A 5)**
  - Statewide permit fee schedule
  - Local authority to reduce or increase fee amounts
  - Local authority to "consolidate such [VSMP] fees with other program-related charges"
- **E&S Statute (:54 J)**
  - E&S fees are "in addition to any fee charged for administration of a VSMP"
  - Locality may consolidate E&S and VSMP fees

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Fees (cont.)

- **VSMP Regulation**
  - **Fee Decreases:** Requires demonstration to DEQ of locality's ability to fully and successfully implement VSMP without a full implementation of state fee schedule
  - **Fee Increases:** Requires demonstration to DEQ that greater fees are necessary to properly administer the VSMP
  - **Other Fees:** "Nothing in this part shall prohibit a locality from establishing other local fees authorized by the Code of Virginia related to stormwater management within their jurisdictions.
    - Ex: E&S fees
    - Ex: Stormwater Utility or Service District fees

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Fees (cont.)

- **Model Ordinance**
  - Sets out statewide fee schedule
  - But notes that inclusion in ordinance is optional
- **Checklist**
  - Again notes that inclusion in ordinance is optional
  - Requests submittal of fee provisions to DEQ even if not set forth in ordinance

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Grandfathering

- **Use current stormwater technical criteria**
  - Plans approved before July 2012, and
  - Obtaining a VSMP permit before July 1, 2014
- **Includes**
  - Proffered or conditional zoning plans
  - Preliminary or final subdivision plats
  - Preliminary or final site plans
  - Zonings with a plan of development
- **Expiration**
  - Grandfathering ends June 30, 2019, or
  - Termination of permit
- **Guidance**
  - On DEQ Stormwater Guidance webpage (see References)

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Nutrient Offsets (Offsite Trading)

- **Old Rules**
  - Localities were authorized to allow nutrient offsets under certain circumstances
- **New Rules**
  - Developers have right to use offsets under certain conditions
    - Under five acres disturbed, or
    - Less than 10 lbs reduction required, or
    - Onsite control of at least 75% of the required nutrient reductions
- **Water Quality (Nutrient) Concept Only**
  - Offsets are not allowed for water quantity
- **Guidance**
  - On DEQ Stormwater Guidance webpage (see References)

Locality Compliance

- **Potential Enforcers**
  - State (DEQ)
    - For all Federal and State law requirements
  - EPA & Citizens
    - For MS4 Permit Requirements
    - Not "State-only" requirements
  - Issue
    - Risks associated with administration of VSMP, E&S, and Bay Act programs? (blue-green boxes on next slides)

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STATE Enforcement Authority v. *LOCALITY*

CWA Water Quality Standards ("WQS"): Goals for Ambient (Instream) Water Quality	DEQ Adopts; EPA Approves	All Surface Waters; Various Uses & Pollutants
CWA Total Maximum Daily Loads (TMDLs): Maximum Discharges Based on WQS	DEQ Adopts; EPA Approves (Except Bay – EPA Adopted)	Pollutant Impairing Surface Water (Water Body Fails to Meet WQS)
CWA NPDES Permit: Municipal Separate Storm Sewer System ("MS4") Permit	1. DEQ Permits/EPA Oversees; 2. DEQ Approves Locality Plans (Gen Prgm & TMDL Implement)	Owners and Service Areas of All Designated Phase I and Phase II MS4s
CWA NPDES Permit: Construction Gen Permit ("CGP") Covering Construction Period	DEQ Adopts; EPA Veto Opportunity	Operators Disturbing ≥1 Acre (or less as part of common plan of development ≥1 acre)
VA Erosion & Sediment Control Law ("E&S")	Locality Adopts/Admins Prgm; DEQ Oversees Localities	Operators Disturbing ≥ 10,000 sf (Construction)
VA Chesapeake Bay Preservation Act ("Bay Act")	Locality Adopts Local Program; DEQ Oversees Localities	Operators Disturbing ≥ 2,500 sf (Tidewater Only) (Pre-, Construction, & Post-)
VA Stormwater Mgmt Act/Prgm ("VSMP")	Locality Adopts Local Program; DEQ Oversees Localities	Various Thresholds: Bay Act Areas: ≥ 2,500 sf Elsewhere: ≥ 10,000 sf (CGP) (Construction & Post-Constr.)

EPA & CITIZEN Enforcement Authority v. *LOCALITY*

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LOCALITY Enforcement Authority v. *DEVELOPER*

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Locality Compliance

- **Risk of Expanding EPA & Citizen Enforcement**
  - To the extent that State-only requirements are rolled up into MS4 permits
- **Practice Tip**
  - Draft and managed your VSMP, E&S, and Bay Act programs to give you flexibility / discretion from CWA perspective

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Resources

- **More Stringent Local Ordinances (HB 2190 – 2012)**
  - 5/9/13 C. Pomeroy presentation (Appendix A hereto)
- **Statutory Crosswalk (Title 10.1 to Title 62.1)**
  - http://www.deq.state.va.us/Programs/Water/StormwaterManagement.aspx
- **New DEQ Regulations (Code Sections Changes to 9 VAC)**
  - 8/27/13 State Water Control Board package copy available from GWRC
- **DEQ / DCR Stormwater Guidance Page**
  - Various guidance including DCR Model Ordinance
  - http://www.deq.state.va.us/Programs/Water/LawsRegulationsGuidance/Guidance/StormwaterManagementGuidance.aspx
- **DEQ Local Ordinance Review Checklist**
  - 8/12/13 Draft available from GWRC
- **Virginia Municipal Stormwater Association**
  - www.VAMSA.org

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DISCUSSION

Questions / Issues
Action Items

Stormwater Ordinance Development

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APPENDIX A
HB 2190 (2013)
More Stringent Ordinances

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GEORGE WASHINGTON REGIONAL COMMISSION
STORMWATER TECHNICAL COMMITTEE
MAY 9, 2013

HB 2190 (2013)
More Stringent Ordinances

CHRIS POMEROY
MEMBER & PRESIDENT
AQUALAW

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Overview

- **HB 2190 Background**
  - Origins and stated rationale
- **Review of HB 2190**
  - Scope and specific requirements
- **HB 2190 Implications**
  - Practical tips for implementing HB 2190
- **Other Authority**
  - Under Va. Code Titles 10.1 and 15.2

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Local VSMP Authority Generally: §10.1-603.3 (Unchanged)

- E. Each locality…shall, by ordinance, establish a VSMP that shall be administered in conjunction with a local MS4 program and a local erosion and sediment control program where applicable, and which shall include, but is not limited to, the following:
  - 1. Consistency with regulations adopted in accordance with provisions of this article;
  - 2. Provisions for long-term responsibility for and maintenance of stormwater mgmt control devices…; and
  - 3. Provisions for the integration of the VSMP with local erosion and sediment control, flood insurance, flood plain management, and other programs …

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More Stringent Ordinances: §10.1-603.7 A (Unchanged)

Statute

- Localities are authorized to adopt more stringent stormwater management ordinances than those necessary to ensure compliance with the Board's minimum regulations, **provided**…

Key Issue: Are you exercising this authority?

- On what authority is my provision based?
- §10.1-603.7 or other statute? (See list below)
- If other, this statute not applicable

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§10.1-603.7 A (cont.)

Statute

- Localities are authorized to adopt more stringent stormwater management ordinances than those necessary to ensure compliance with the Board's minimum regulations, **provided**…

Key Issue: Is my provision "more stringent"?

- Technical design standards (Ex: P ≤0.41 lbs/ac/yr) – YES
- Other substantive provisions? ("Including but not ltd too")
- Procedural requirements? – NO

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§10.1-603.7 A (cont.)

Statute

- **provided** that the more stringent ordinances are based upon
  - factual findings of local or regional comprehensive watershed management studies **or**
  - findings developed through the implementation of a MS4 permit **or**
  - a locally adopted watershed management study **and**

Key Issues: Scope & Opportunity

- This shows that §10.1-603.7 concerns tech issues
- Puts the locality in driver's seat on finding of need

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§10.1-603.7 A (cont.)

Statute

- **and** are determined by the locality to be necessary
  - to prevent any further degradation to water resources,
  - to address TMDL requirements,
  - to protect exceptional state waters, or
  - to address
    - existing water pollution incl nutrient & sediment loadings,
    - stream channel erosion,
    - depleted groundwater resources, or
    - excessive localized flooding within the watershed [and hold public hearing prior]

Broad Scope of Authority for Stormwater Mgmt

- Degradation generally, pollutants, erosion, GW, and flooding

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DCR Review of Ordinances: New §10.1-603.7 B

Statute

- Localities shall submit a letter report to the Department when more stringent stormwater management ordinances or more stringent requirements authorized by such ordinances, such as may be set forth in design manuals, policies, or guidance documents developed by the localities, are determined to be necessary pursuant to this section within 30 days after adoption thereof. Any such letter report shall include a summary explanation as to why the more stringent ordinance or requirement has been determined to be necessary pursuant to this section.

Key Issues: Documentation & Disclosure

- For requirements adopted under subsection A, locality already has documentation

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New §10.1-603.7 B (cont.)

Statute

- Upon the request of an affected landowner or his agent submitted to the Department with a copy to the sent to the locality, within 90 days after adoption of any such ordinance or derivative requirement, localities shall submit the ordinance or requirement and all other supporting materials to the Department for a determination of whether the requirements of this section have been met [SECTION A] **and** whether any determination made by the locality pursuant to this section is supported by the evidence.

Key Issue: Review Is Limited

- 90 day deadline avoids open-ended exposure
- Standard of State review intended to be easy to meet ("supported by evidence", not State's preference)

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New §10.1-603.7 B (cont.)

Statute

- The Dept. shall issue a written determination setting forth its rationale within 90 days of submission. Such a determination, or a failure by the Department to make such a determination within the 90-day period, may be appealed to the Board.

Key Issues for Administrative Appeal:

- Administrative appeal to State Water Control, where there is a long history of SWCB deferring to locality decisions, rather than attempting to second guess them
- These multiple layers of review must be tedious for a permit applicant (developer) to undertake, so that should discourage frivolous reviews and challenges

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BMP Provisions: New §10.1-603.7 C

Statute

- Localities shall not prohibit or otherwise limit the use of any best management practice (BMP) approved for use by the Director or the Board except as follows:
  - [Site-Specific Provision]
  - [Jurisdiction-Wide or Geographical Limits]

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New §10.1-603.7 C (cont.)

Site-Specific Provision

- When the Director or the Board approves the use of any BMP in accordance with its stated conditions, the locality serving as a VSMP authority shall have authority to preclude the onsite use of the approved BMP, or to require more stringent conditions upon its use, for a specific land-disturbing project based on a review of the stormwater management plan and project site conditions. Such limitations shall be based on site-specific concerns.

Key Issue: High Locality Discretion at Site Level

- Broad locality authority for ***site-specific*** decisions

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New §10.1-603.7 C (cont.)

Site-Specific Provision (cont.)

- Any project or site-specific determination purportedly authorized pursuant to this subsection may be appealed to the Department and the Department shall issue a written determination regarding compliance with this section to the requesting party within 90 days of submission. Any such determination, or a failure by the Department to make any such determination within the 90-day period, may be appealed to the Board.

Key Issues: Review Process

- Locality's "compliance" requirements (see previous slide) appear to be low / easily satisfied
- Again, review process would be tedious for permit applicant, so that should discourage frivolous challenges

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New §10.1-603.7 C (cont.)

Jurisdiction-Wide/Geographical Limits

- When a locality is seeking to uniformly preclude jurisdiction-wide or otherwise limit geographically the use of a BMP approved by the Director or Board, or to apply more stringent conditions to the use of a BMP approved by the Director or Board, upon the request of an affected landowner or his agent submitted to the Dept., with a copy submitted to the locality, within 90 days after adoption, such authorizing ordinances, design manuals, policies, or guidance documents developed by the locality that set forth the BMP use policy shall be provided to the Dept. in such manner as may be prescribed by the Dept. that includes a written justification and explanation as to why such more stringent limitation or conditions are determined to be necessary.

Similar to Subsection B review (discussed above)

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New §10.1-603.7 C (cont.)

Jurisdiction-Wide/Geographical Limits (cont.)

- The Dept. shall review all supporting materials provided by the locality to determine whether the requirements of this section have been met **and** that any determination made by the locality pursuant to this section is reasonable under the circumstances. The Dept. shall issue its determination to the locality in writing within 90 days of submission. Such a determination, or a failure by the Dept. to make such a determination within the 90-day period, may be appealed to the Board.

Key Issue: Review Standard Defers to Locality

- Under reasonableness standard, State must defer to a locality decision unless it is unreasonable (even if State agency would have made a different choice)

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Grandfathering
Amended §10.1-603.7 E

Statute

- Any provisions of a local stormwater management program in existence before January 1, 2013, that contains more stringent provisions than this article shall be exempt from the requirements of this section. However, such provisions shall be reported to the Board at the time of the locality's VSMP approval package.

Key Issue: Claiming This Exemption Effectively

- Claim exemption specifically for key provisions
- Claim it generally too ("all other more stringent provisions in effect prior to Jan. 1, 2013")

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Appendix of Additional Sources of Local Authority

- **Standards for Use and Services of Sewers**
  - Va. Code § 15.2-2122
- **Land Subdivision & Development**
  - Va. Code § 15.2-2241
- **Erosion & Sediment Control Law**
  - Va. Code § 10.1-570

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Standards for Use and Services of Sewers (Va. Code § 15.2-2122)

Statute

- For the purpose of providing relief from pollution, and for the improvement of conditions affecting the public health, and in addition to other powers conferred by law, any locality shall have the power and authority to: …
- 10. Establish standards for the use and services of sanitary, combined and stormwater sewer systems …. Such standards may be implemented by ordinances….

Comments

- Broad authority governing storm sewer use
- This section goes on to provide powerful, detailed enforcement procedures

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Land Subdivision & Development (Va. Code § 15.2-2241 A)

- A subdivision ordinance shall include reasonable regulations and provisions that apply to or provide: …
- 3. For adequate provisions for drainage and flood control, for adequate provisions related to the failure of impounding structures and impacts within dam break inundation zones, and other public purposes, and for light and air, and for identifying soil characteristics;
- 4. For the extent to which and the manner in which streets shall be graded, graveled or otherwise improved and water and storm and sanitary sewer and other public utilities or other community facilities are to be installed;

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Erosion & Sediment Control Law (Va. Code § 10.1-570)

- Authorizes more stringent regulations as part of a VESCP (provided there is similar technical basis as for stormwater requirements under §10-603.7)
- "However, this section shall not be construed to authorize any district or locality to impose any more stringent regulations for plan approval or permit issuance than those specified in §§ 10.1-563 and 10.1-565."
- Grandfathers provisions existing before July 1, 2012

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Erosion & Sediment Control Law (Va. Code § 10.1-570)

- "Authorization for more stringent regulations."
- "As part of a VESCP"
- "more stringent soil erosion and sediment control regulations or ordinances than those necessary to ensure compliance with the Board's regulations"
- "provided that [they] are based upon factual findings"... AND
- "are determined by ... locality to be necessary to [address water quality, groundwater, erosion, flooding, etc.] "However, this section shall not be construed to authorize any district or locality to impose any more stringent regulations for plan approval or permit issuance than those specified in §§ 10.1-563 and 10.1-565."
- Grandfathers provisions existing before July 1, 2012

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QUESTIONS?

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ATTACHMENT 2.B.6

Attachment 2.B.6: Caroline County Draft VSMP Ordinance

INTRODUCTION

The draft Caroline County Stormwater Management Ordinance (Ordinance) was developed using the Virginia Stormwater Management Model Ordinance, created by the Virginia Department of Conservation and Recreation, as its basis while incorporating stormwater management and erosion and sediment control ordinance language provided by the Center for Watershed Protection, or the Conservation Concepts Team.

The goal of the Ordinance is to provide Caroline County with a Stormwater Management Ordinance that will meet *(or exceed, at the local option)* the requirements to develop state-approved Virginia Stormwater Management Programs (VSMPs).

Table of Contents

(as corresponds to the Caroline County Code of Ordinances)

Note: Fees have been moved to Chapter 29, Article II, Section I.

CHAPTER 46. STORMWATER MANAGEMENT

[HISTORY: Adopted by the Board of Supervisors of the County of Caroline, Month, day, year]

GENERAL REFERENCES

Building and land use fees — See Ch. 29.
Erosion and Sediment Control -- See Ch 45
Subdivision of land — See Ch. 98.

DRAFT
CAROLINE COUNTY STORMWATER MANAGEMENT ORDINANCE

Pursuant to the Code of Virginia § 62.1-44.15:27, this ordinance is adopted as part of an initiative to integrate the Caroline County stormwater management requirements with the Caroline County erosion and sediment control **[Chapter 45 of Caroline County Code]**, flood insurance **[Article XV, Section 6, Caroline County Zoning Ordinance]**, flood plain management **[Article XV, Section 6, Caroline County Zoning Ordinance]**, and Chesapeake Bay Preservation Act **[Chapter 4 Caroline County Comprehensive Plan and Article XV of the Caroline County Zoning Ordinance]** requirements into a unified stormwater program. The unified stormwater program is intended to facilitate the submission and approval of plans, issuance of permits, payment of fees, and coordination of inspection and enforcement activities into a more convenient and efficient manner for both Caroline County and those responsible for compliance with these programs. The Department will assist localities in identifying where the required stormwater management provisions may be integrated into existing ordinances.

§ 46-1. PURPOSE AND AUTHORITY. (SECTION 4VAC50-60-20, 4VAC-60-40)

The Caroline County Board of Supervisors desires to protect the health, safety, welfare, and property of Caroline County residents and businesses, and the quality of waters within the County. The Caroline County Board of Supervisors recognizes that development tends to degrade these waters through erosion and sedimentation, increased flooding, stream channel erosion, and the transport and deposition of waterborne pollutants. This degradation is due, in part, to increased stormwater runoff as property is developed. Hence, the Caroline County Board of Supervisors has determined that it is in the public interest to establish requirements which regulate the discharge of stormwater runoff from developments by integrating hydrologic and water quality functions into all aspects of a development's design, landscape and infrastructure.

(a) The purpose of this Ordinance, pursuant to 4VAC50-60-20, is to ensure the general health, safety, and welfare of the citizens of Caroline County and protect the quality and quantity of state waters from the potential harm of unmanaged stormwater, including protection from a land disturbing activity causing unreasonable degradation of properties, water quality, stream channels, and other natural resources, and to establish procedures whereby stormwater requirements related to water quality and quantity shall be administered and enforced.

(b) This article supplements and is to be applied in conjunction with Caroline County building code, subdivision, and zoning ordinances as they apply to the development or subdivision of land within Caroline County.

(c) Pursuant to the Code of Virginia § 62.1-44.15:54, Caroline County is designated as a Virginia Erosion and Sediment Control Program (VESCP) Authority to administer, conduct and enforce a Virginia Erosion and Sediment Control Program.

(d) Pursuant to the Code of Virginia § 62.1-44.15:27, Caroline County is designated as a Virginia Stormwater Management Program (VSMP) authority to operate a Virginia Stormwater Management Program.
Reference: 4VAC50-60-20 and § 62.1-44.15:27: Purposes; 4VAC50-60-40: Authority; 4VAC50-30-30: Scope and applicability

§ 46-2. DEFINITIONS. (4VAC50-60-10)

Caroline County adopts and incorporates by reference, the definitions established by the State of Virginia as set forth in 4VAC50-60-10. In addition to these definitions, the following words and terms used in this chapter have the following meanings unless the context clearly indicates otherwise.

"Adequate channel" means a natural or manmade channel which is capable of conveying runoff from a ten-year storm without overtopping its banks and from a two-year storm without eroding. A pipe or storm sewer system is adequate if runoff from a ten-year storm is contained within the system.

"*Agreement in lieu of plan*" means a contract between the plan-approving authority and the owner that specifies conservation measures that must be implemented in the construction of a single-family residence. This contract may be executed by the plan-approving authority in lieu of a formal site plan for the residence.

"*Applicant*" means any person submitting an application for a permit or requesting issuance of a permit under this Ordinance.

"As-built plan" means a set of engineering or site drawings that adequately depict stormwater management facilities and stormwater drainage systems as they were actually constructed.

"*Best management practice implementation plan*" or "*BMP Implementation Plan*" is a site specific design plan for the implementation of BMPs on an individual single family lot or other parcel with less than one acre of land disturbance within a larger common plan of development. The BMP Implementation Plan provides detailed information on the implementation of the SWM pollutant load and volume reduction BMPs and other requirements for the individual lot or parcel as detailed in the SWPPP and SWM plans of the VSMP Permit for the larger common plan of

development.

"*Certificate of Competence*" means an individual who holds a certificate of competence from the board or is enrolled in the board's training program and successfully completes such program within one year after enrollment for:

i) project inspection for ESC
ii) project inspection for SWM
iii) plan review for ESC, or is licensed as a professional engineer, architect, certified landscape architect or land surveyor pursuant to Article 1 (§ 54.1-400 et seq.) of Chapter 4 of Title 54.1 of the Code of Virginia.
iv) plan review for SWM
v) program administration for ESC
vi) Program administration for SWM
vii) Responsible land disturber, or is licensed as a professional engineer, architect, certified landscape architect or land surveyor pursuant to Article 1 (§ 54.1-400 et seq.) of Chapter 4 of Title 54.1 of the Code of Virginia.

"*Clearing*" means any activity which removes the vegetative ground cover including, but not limited to, root mat removal, or topsoil stripping.

"*Conservation plan, erosion and sediment control plan*" or *plan* means a document containing material and information or drawings for the conservation of soil and water resources of a unit or group of units of land. It shall include appropriate maps, an appropriate soil and water plan, with timing of proposed sediment-control measures, inventory and management information, with needed interpretations, and a record of decisions contributing to conservation treatment. The plan shall conform to the standards and specifications, stormwater management methods, calculations and criteria set forth in the Virginia Erosion and Sediment Control Handbook, the Virginia Erosion and Sediment Control Regulations, and this chapter.

"*Conservation standards*" or "*standards*" means standards adopted by the county pursuant to this chapter.

"*Construction phasing" or "staging of construction,"* as the term is used in this chapter, means a construction process to control erosion and sedimentation where only a specified portion of an entire construction site is disturbed at any one time for the construction of the required infrastructure within that portion, and no subsequent portion of the construction site is allowed to be disturbed until the previous portion of land has been stabilized. Construction phasing is not to be confused with the terms "phasing of development" or "construction sequencing."

"*Department*" means the Department of Environmental Quality.

"*Erosion and Sediment Control Plan*" or "*ESC plan*", means a document containing material

for the conservation of soil and water resources of a unit or group of units of land. It may include appropriate maps, an appropriate soil and water plan inventory and management information with needed interpretations, and a record of decisions contributing to conservation treatment. The plan shall contain all major conservation decisions and all information deemed necessary by the plan-approving authority to assure that the entire unit or units of land will be so treated to achieve the conservation objectives.

"*Erosion control handbook*" means the locally adopted erosion and sediment control handbook with such amendments, modifications and supplements as may, from time to time, be properly adopted.

"Erosion impact area" means an area of land not associated with current land-disturbing activity but subject to persistent soil erosion resulting in the delivery of sediment onto neighboring properties or into state waters. This definition shall not apply to any lot or parcel of land of ten thousand (10,000) square feet or less used for residential purposes or to shorelines where the erosion results from wave action or other coastal processes.

"*Excavating*" means any digging, scooping or other methods of removing earth materials.

"*Filling*" means any depositing or stockpiling of earth materials.

"*Immediate*" or "*immediately*" means as soon as practicable, but no later than that end of the next work day, following the day when the earth-disturbing activities have temporarily or permanently ceased. In the context of this permit, "immediate" or "immediately" is used to define the deadline for initiating stabilization measures.

"Integrated management practice" means low-impact development microscale and distributed management techniques used to maintain predevelopment site hydrology. Integrated management practices shall include bioretention facilities, dry wells, filter/buffer strips, grassed swales, rain barrels, cisterns, infiltration trenches and amended soils as specified in the low-impact development design manuals

"Local erosion and sediment control program "or *local control program* means an outline of the various methods employed by Caroline County to regulate land-disturbing activities and thereby minimize erosion and sedimentation in compliance with the state program and may include such items as local ordinance.

"Low-impact development" means a hydrologically functional site design with pollution-prevention measures to reduce impacts and compensate for development impacts on hydrology and water quality.

"Low-impact development design manuals" refers to the Low-Impact Development Design Strategies: An Integrated Design Approach Manual and the Low-Impact Development Hydrologic Analysis Manual as incorporated by reference in this chapter.

"Maintenance agreement" means a legally binding agreement between the landowner of a

stormwater management structure and Caroline County outlining each party's responsibility towards the operation, maintenance and general upkeep of said structure.

"Maintenance plan" means a component of the stormwater management design plan describing the stormwater management structures at the land development project and identifying maintenance items that will be performed by the landowner to ensure proper functioning of said structures.

"Non-structural stormwater practice" means a stormwater runoff treatment technique which uses natural measures to reduce pollutant levels, does not require extensive construction efforts and/or promotes pollution reduction by eliminating the pollutant source.

"Off-site stormwater management facility" means a stormwater management facility located outside the subject property boundary described in the stormwater management design plan for the land development activity.

"On-site stormwater management facility" means a stormwater management facility located within the subject property boundary described in the stormwater management design plan for the land development activity.

"Overcompensation" means the extra water quantity or quality control provided at one site discharge point in order to allow another discharge point(s) to go uncontrolled.

"Pre-treatment" means the techniques employed in a stormwater management plan to provide storage or filtering to help trap course materials before they enter the stormwater BMP. Pre-treatment is required on some BMPs to help avoid costly maintenance.

"Program administrator" means the County Administrator or his designee.

"Redevelopment" means the process of developing land that is or has been previously developed.

"Regional stormwater management facility" (regional facility) means a facility or series of facilities designed to control stormwater runoff from a specific watershed and for one or more developments.

"*Regulations*" means the Virginia Stormwater Management Program (VSMP) Permit Regulations, 4 VAC 50-60, as amended.

"Renewal fee" means the annual fee charged for a grading permit after the initial grading permit is obtained.

"Responsible land disturber" means an individual from the project or development team who will be in charge of and responsible for carrying out a land-disturbing activity covered by an approved plan or agreement in lieu of a plan, who (i) holds a responsible land disturber certificate of competence, (ii) holds a current certificate of competence from the Virginia Soil and Water Conservation Board in the areas of combined administration, program administration, inspection, or

plan review, (iii) holds a current contractor certificate of competence for erosion and sediment control, or (iv) is licensed in Virginia as a professional engineer, architect, certified landscape architect or land surveyor pursuant to article 1 (sec. 54.1-400 et seq.) of chapter 4 of title 54.1 [Code of Virginia 1950].

"*Single-family residence*" means a non-commercial dwelling that is occupied exclusively by one family.

"Site" means the land or water area where any facility or land-disturbing activity is physically located or conducted, including adjacent land used or preserved in connection with the facility or land-disturbing activity. Areas channelward of mean low water in tidal Virginia shall not be considered part of a site.

"*Site hydrology*" means the movement of water on, across, through and off the site as determined by parameters including, but not limited to, soil types, soil permeability, vegetative cover, seasonal water tables, slopes, land cover, and impervious cover.

"Stabilization" means the physical act of installing, applying or planting vegetative or structural soil cover to an area of land to a stabilized condition.

"Stabilized" means the condition of an area of land that can be expected to withstand normal exposure to atmospheric conditions without incurring erosion and or sediment damage to it or to any abutting or adjacent land or water feature.

"State Board" means the Virginia Water Control Board.

"State waters" means all water, on the surface and under the ground, wholly or partially within or bordering the Commonwealth or within its jurisdiction, including wetlands.

"Stormwater drainage" means the collection and conveyance of storm and other surface flows through the land development project in a manner to prevent flooding of structures and associated properties and erosion of channels. Stormwater drainage systems shall include stormwater conveyance channels, storm sewers and culverts.

"Stormwater management" means the collection, conveyance, storage, treatment, and disposal of stormwater runoff in a manner to prevent accelerated channel erosion, increased flood damage, and degradation of water quality.

"Stormwater management concept plan" means a generalized plan provided with the preliminary plan of subdivision describing how stormwater runoff through and from a land development project will be conveyed and controlled.

"Stormwater management extended detention basin" (extended detention basin) means a stormwater management facility that temporarily impounds runoff and discharges it through a hydraulic outlet structure over a specified period of time to a downstream conveyance system for the

purpose of water quality enhancement or stream channel erosion control. Since an extended detention facility impounds runoff only temporarily, it is normally dry during non-rainfall periods.

"Stormwater management filtering system" means a stormwater treatment practice that utilizes an artificial media [medium] to filter out pollutants. Filtering systems shall include bio-retention facilities and sand filters, as specified in the Virginia Stormwater Management Design Manuals.

"Stormwater management infiltration facility" means a stormwater management facility that temporarily impounds runoff and discharges it via infiltration through the surrounding soil. Infiltration facilities shall include infiltration basins, infiltration trenches, dry wells and porous pavement as specified in the stormwater management design manuals.

"Stormwater management open channel system" means a vegetated open channel designed to remove pollutants from stormwater runoff by filtration through grass and infiltration into the soil.

"Stormwater Pollution Prevention Plan Template" or *"SWPPP Template"* means a document intended to be used for single family residential construction land disturbing activity that disturbs less than one acre of land and is part of a larger common plan of development to identify all applicable requirements of the SWPPP that was developed for the larger common plan of development.

"Stormwater management retention basin" (retention basin) means a stormwater management facility that temporarily impounds runoff and discharges it through a hydraulic outlet structure to a downstream conveyance system, and also includes a permanent impoundment. Therefore, it is normally wet, even during non-rainfall periods.

"Stormwater management wetland" means an area intentionally designed and created to emulate the water quality improvement function of wetlands for the primary purpose of removing pollutants from stormwater.

"Transporting" means any moving of earth materials from one place to another place, other than such movement incidental to grading, when such movement results in the destruction of the vegetative ground cover either by tracking or the buildup of earth materials to the extent that erosion and sedimentation will occur.

"VSMP Administrator" means the VSMP authority including the Caroline County staff person or department responsible for administering the VSMP on behalf of the locality.

"VSMP authority permit" means an approval to conduct a land-disturbing activity issued by Caroline County as the permit-issuing VSMP authority for the initiation of a land-disturbing activity after evidence of coverage under the General Permit for Discharges of Stormwater from Construction Activities found in Part XIV (4VAC50-60-1100 et seq.) of the Virginia Stormwater Management Program Regulations has been provided

"*VSMP Construction General Permit*" or "*Construction General Permit*" means the General Permit for Discharges of Stormwater from Construction Activities found in Part XIV (4VAC50-60-1100 et seq.) of the Virginia Stormwater Management Program Regulations Section

§ 46-3. STORMWATER PERMIT REQUIREMENT; EXEMPTIONS. (§ 62.1-44.15:34C)

A. Except as provided herein, no person may engage in any land-disturbing activity until a VSMP authority permit has been issued by the Administrator in accordance with the provisions of this Ordinance as required by § 62.1-44.15:34A.

B. A Chesapeake Bay Preservation Act Land-Disturbing Activity greater than 2,500 ft^2 shall be subject to the technical criteria and program and administrative requirements in 4VAC50-60-51 including:

1. an erosion and sediment control plan consistent with the requirements of the Erosion and Sediment Control Ordinance,
2. a stormwater management plan as outlined under § 46-6, subject to design storm and hydrologic methods, linear development controls, and criteria associated with stormwater impoundment structures or facilities,
3. water quality design criteria,
4. water quality compliance,
5. channel and flood protection,
6. the technical criteria and administrative requirements for land-disturbing activities outlined in § 46-10,
7. the requirements for control measures and long-term maintenance outlined under § 46-11, and provisions for inspections pursuant to 4VAC50-60-114.

C. Notwithstanding any other provisions of this chapter, the following activities are exempt from obtaining a Caroline County Land Disturbing Permit:

1. Land-disturbing activities of less than 10,000 square feet in size except for land disturbing activity exceeding an area of 2,500 square feet in all areas of the jurisdictions designated as subject to the Chesapeake Bay Preservation Area Designation and Management Regulations (9 VAC 10-20) adopted pursuant to the Chesapeake Bay Preservation Act (§10.1 – 2100 et seq.) or activities that are part of a larger common plan of development or sale that is 10,000 square feet or greater of disturbance;

2. Individual service connections;

3. Installation, maintenance, or repair of any underground public utility lines when such activity occurs on an existing hard surfaced road, street or sidewalk provided the land-disturbing activity is confined to the area of the road, street or sidewalk that is hard surfaced;

4. Septic tank lines or drainage fields unless included in an overall plan for land-disturbing activity relating to construction of the building to be served by the septic tank system;

5. Permitted surface or deep mining operations and projects, or oil and gas operations and projects conducted under the provisions of Title 45:1;

6. Clearing of lands specifically for agricultural purposes and the management, tilling, planting or harvesting of agricultural, horticultural, or forest crops, livestock feedlot operations, or as additionally set forth by the Board in regulations, including engineering operations as follows: construction of terraces, terrace outlets, check dams, desilting basins, dikes, ponds, ditches, strip cropping, lister furrowing, contour cultivating, contour furrowing, land drainage, and land irrigation; however, this exception shall not apply to harvesting of forest crops unless the area on which harvesting occurs is reforested artificially or naturally in accordance with the provisions of Chapter 11 (§ 10.1 – 1100 et seq.) or is converted to bona fide agricultural or improved pasture use as described in subsection B of §10.1-1163;

7. Repair or rebuilding of the tracks, right-of-way, bridges, communication facilities and other related structures and facilities of a railroad company;

8. Agricultural engineering operations, including but not limited to the construction of terraces, terrace outlets, check dams, desilting basins, dikes, ponds not required to comply with the provisions of the Dam Safety Act, Article 2 (§ 10.1-604 et seq.) of Chapter 6, ditches, strip cropping, lister furrowing, contour cultivating, contour furrowing, land drainage and land irrigation;

9. Installation of fence and sign posts or telephone and electric poles and other kinds of posts or poles; and

10. Emergency work to protect life, limb or property, and emergency repairs; however, if the land-disturbing activity would have required a Land Disturbing Permit if the activity were not an emergency, then the land area disturbed shall be shaped and stabilized in accordance with the corresponding requirements of this ordinance. In either situation, the VSMP Authority shall be advised of the disturbance within seven days of commencing the land-disturbing activity, and compliance with the administrative requirements of this ordinance is required within 30 days of commencing the land-disturbing activity.

D. VSMP Authority Permit (§ 62.1-44.15:34A)
   1. Except as exempted in item 3 of this section, all land disturbing activities that disturb one acre or greater must obtain a Caroline County Land Disturbing Permit as required in Subsection C of this section, and must also obtain coverage under a VSMP Authority Permit;
   2. Land disturbing activities that are part of a larger *common plan of development* must obtain a Caroline County Land Disturbing Permit as required in Subsection C of this section, and shall meet one of the following:

a. Obtain coverage under the existing VSMP Authority Permit issued by the VSMP Authority for the larger *common plan of development*; or
b. Obtain coverage under a new (or separate) VSMP Authority Permit for the land disturbing activity.

3. Notwithstanding any other provisions of this chapter, the following activities are exempt from obtaining a VSMP Authority Permit unless otherwise required by federal law:
   a. Permitted surface or deep mining operations and projects, or oil and gas operations and projects conducted under the provisions of Title 45:1;
   b. Clearing of lands specifically for agricultural purposes and the management, tilling, planting, or harvesting of agricultural, horticultural, or forest crops, livestock feedlot operations, or as additionally set forth by the board in regulations, including engineering operations as follows: construction of terraces, terrace outlets, check dams, de-silting basins, dikes, ponds, ditches, strip cropping, lister furrowing, contour cultivating, contour furrowing, land drainage, and land irrigation; however, this exception shall not apply to harvesting of forest crops unless the area on which harvesting occurs is reforested artificially or naturally in accordance with the provisions of Chapter 11 (§ 10.1-1100 et seq.) or is converted to bona fide agricultural or improved pasture use as described in subsection B of § 10.1-1163;
   c. Single-family residences separately built and disturbing less than one acre and not part of a larger common plan of development or sale, including additions or modifications to existing single-family detached residential structures. However, localities subject to the Chesapeake Bay Preservation Act (§ 10.1 – 2100 et seq.) may regulate these single family residences where land disturbance exceeds 2,500 square feet;
   d. Land disturbing activities that disturb less than one acre of land area except for land disturbing activity exceeding an area of 2,500 square feet in all areas of the jurisdictions designated as subject to the Chesapeake Bay Preservation Area Designation and Management Regulations (9 VAC 10-20) adopted pursuant to the Chesapeake Bay Preservation Act (§10.1 – 2100 et seq.) or activities that are part of a larger common plan of development or sale that is one acre or greater of disturbance; however, the governing body of any locality that administers a VSMP may reduce this exception to a smaller area of disturbed land or qualify the conditions under which this exception shall apply;
   e. Discharges to a sanitary sewer or combined sewer system;
   f. Activities under a State or federal reclamation program to return an abandoned property to an agricultural or open land use;
   g. Routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original construction of the project. The paving of an existing road with a compacted or impervious surface and reestablishment of existing associated ditches and shoulders shall be deemed routine maintenance if performed in accordance with this subsection; and

h. Conducting land-disturbing activities in response to a public emergency where the related work requires immediate authorization to avoid imminent endangerment to human health or the environment. In such situations, the VSMP authority shall be advised of the disturbance within seven days of commencing the land-disturbing activity and compliance with the administrative requirements of subsection A is required within 30 days of commencing the land-disturbing activity. The operator has coverage under the VSMP Authority Permit provided that:

(1). The operator advises the VSMP Authority of the construction activity within seven days of commencing land disturbing activities;

(2). VSMP Authority Permit coverage is applied for within 30 days of commencing land disturbing activities that includes provisions to the land area disturbed to be shaped and stabilized in accordance with the corresponding requirements of this ordinance; and

(3). Documentation is provided with the registration statement to substantiate the occurrence of a public emergency.

Reference: § 62.1-44.15:34C, 4VAC50-60-1170 Section I.A.c

§ 46-4. STORMWATER MANAGEMENT PROGRAM ESTABLISHED; SUBMISSION AND APPROVAL OF PLANS; PROHIBITIONS.

A. Pursuant to § 62.1-44.15:27 of the Code of Virginia, Caroline County hereby establishes a Virginia stormwater management program for land-disturbing activities and adopts the applicable Regulations that specify standards and specifications for VSMPs promulgated by the State Board for the purposes set out in § 46-1 of this Ordinance. Caroline County hereby designates the Director of the Department of Planning and Community Development or his designee as the Administrator of the Virginia Stormwater Management Program (VSMP).

B. No VSMP authority permit shall be issued by the Administrator, until the following items have been submitted to and approved by the Administrator as prescribed herein:

1. A permit application that includes a general permit registration statement;
2. A Caroline County Land Disturbing Permit Application must be submitted to the Director;
3. A Stormwater Pollution Prevention Plan (SWPPP) must be submitted to and approved by the VSMP Authority in accordance with the provisions of this Chapter, § 46-5;
4. An erosion and sediment control plan approved in accordance with the Caroline County Erosion and Sediment Control Ordinance, Chapter 45 of the Caroline County Code; and
5. A Stormwater Management Plan that meets the requirements of § 46-6 of this Ordinance.

C. No VSMP authority permit shall be issued until evidence of general permit coverage is obtained (§ 62.1-44.15:34).

D. No VSMP authority permit shall be issued until the fees required to be paid pursuant to Chapter 29 of Caroline County Code, are received, and the performance bond required pursuant to § 46-16 of this Ordinance has been submitted (4VAC50-60-750.A).

E. No VSMP authority permit shall be issued unless and until the permit application and attendant materials and supporting documentation demonstrate that all land clearing, construction, disturbance, land development and drainage will be done according to the approved permit.

F. No grading, building or other local permit shall be issued for a property unless a VSMP authority permit has been issued by the Administrator (§ 62.1-44.15:34A).

G. It shall be unlawful to:
   1. Cause or allow illicit discharges into the county's stormwater system;
   2. Discharge materials other than stormwater into the stormwater system by spills, dumping, or disposal without a VPDES permit;
   3. Cause or allow industrial discharges into the stormwater system without a VPDES permit; or
   4. Violate any condition or provision of this article or any permit granted for stormwater discharges.

§ 46-5. STORMWATER POLLUTION PREVENTION PLAN

A. Land disturbing Activities of 10,000 ft^2 or greater, and less than one acre (i.e. 43,560 ft^2), and not part of a larger common plan of development shall include:
   1. General Storwater Pollution Prevention Plan (SWPPP) requirements as described in Subsection E below;
   2. An Erosion and Sediment Control (ESC) plan as described in § 46-10;

B. Land disturbing activities of 10,000 ft^2 or greater, and less than one acre (i.e. 43,560 ft^2), and part of a larger common plan of development shall include:
   1. General SWPPP requirements as described in Subsection E below;
   2. An ESC plan or if single family residential construction an agreement in lieu of an ESC plan as described in § 46-10;
   3. *BMP Implementation Plan* demonstrating compliance with all applicable elements of the approved SWPPP developed for the larger common plan of development in order to maintain coverage under the previously issued VSMP Authority Permit;
   4. If the previously issued VSMP Authority permit coverage as described in item 3 of this subsection is unavailable, a BMP Implementation Plan and a SWPPP Template shall be required to obtain new VSMP Permit coverage.

C. A SWPPP for land disturbing activities of one acre or greater that are part of a larger common plan of development shall include:
   1. General SWPPP requirements as described in Sub-section E below;

2. An approved ESC plan as described in § 46-10;
3. An approved *BMP Implementation Plan* demonstrating compliance with all applicable elements of the approved SWPPP developed for the larger common plan of development in order to maintain coverage under the previously issued VSMP Authority Permit;
4. If the previously issued VSMP Authority permit coverage as described in item 3 of this subsection is unavailable, the following shall be required in order to obtain new VSMP Permit Coverage:
   a. *BMP Implementation Plan* demonstrating compliance with all applicable elements of the approved Storm Water Management (SWM) plan developed for the larger common plan of development;
   b. A Pollution Prevention (PP) plan as described in § 46-7; and
   c. A Total Maximum Daily Load (TMDL) and Exceptional Waters (EW) Action Plan as described in § 46-8;

D. A SWPPP for land disturbing activities of one (1) acre or greater shall include:
1. General SWPPP requirements described in Subsection E below;
2. An approved ESC plan as described in § 46-10;
3. An approved SWM plan as described in § 46-6;
4. A PP plan as described in § 46-7; and
5. A TMDL and EW Action Plan as described in § 46-8;

E. The contents of a Stormwater Pollution Prevention Plan (SWPPP)
1. The Stormwater Pollution Prevention Plan (SWPPP) shall include the content specified by Section 4VAC50-60-54 and must also comply with the requirements and general information set forth in Section 4VAC50-60-1170, Section II [stormwater pollution prevention plan] of the general permit. In particular, the SWPPP shall include:
   a. Contact information including the name, address, and telephone number of the owner and the tax reference number and parcel number of the property or properties affected;
   b. A certification that the SWPPP meets all submittal requirements outlined in this ordinance and was prepared and appropriately sealed and signed by a professional registered in the Commonwealth of Virginia pursuant to Article 1 (§54.1-400 et seq.) of Chapter 4 of Title 54.1 of the Code of Virginia.
   c. A certification that the person responsible for carrying out the plan will properly perform the conservation measures included in the plan and that he will conform to the provisions of Code of Virginia, § 62.1-44.15:51 et seq., (the Virginia Erosion and Sediment Control Law) and Virginia Administrative Code 4VAC50-30 (the Virginia Erosion and Sediment Control Regulations), and Code of Virginia, §62.1-44.15:24 et seq., known as the Virginia Stormwater Management Act and Virginia Administrative Code 4VAC50-60 (the Virginia Stormwater Management Regulations) of the board.

d. A certification that all applicable U.S. Army Corps of Engineers and state permits necessary for activities in state waters and wetlands or appropriate waivers of jurisdiction have been obtained.

F. Except as provided in item C of this section, prior to engaging in the land disturbing activities shown on the approved plan, the person responsible for carrying out the plan shall provide the name of an individual qualified (or certified) as a *Responsible Land Disturber* to the VSMP Authority who will be in charge of and responsible for carrying out the land disturbing activity. Failure to provide the name of an individual holding a certificate of competence prior to engaging in land disturbing activities may result in revocation of the approval of the plan and the person responsible for carrying out the plan shall be subject to the penalties provided in § 46-15.
Reference: § 62.1-44.15:55

G. The designation of a *Responsible Land Disturber* shall not be required for persons carrying out an agreement in lieu of a plan for construction of a single-family residence that results in less than one acre of land disturbance unless it has been determined that the proposed land disturbing activities are adjacent to and may potentially impact a sensitive resource area, including but not limited to streams, wetlands, and steep slopes. If a violation occurs during the land disturbing activity, then the person responsible for carrying out the agreement in lieu of a plan shall correct the violation and provide the name of an individual qualified as a *Responsible Land Disturber*. Failure to provide the name of a *Responsible Land Disturber* shall be a violation of this section.
Reference: § 62.1-44.15:58

H. The SWPPP must be maintained at a central location on-site. If an on-site location is unavailable, notice of the SWPPP's location must be posted near the main entrance at the construction site (4VAC50-60-54.G).

I. SWPPPs shall include the following Environmental Resources Inventory (ERI) information:
1. A site plan or map which conforms to any plan of development or subdivision plat and shall include the information required in this section.
2. A narrative that includes a description of current site conditions and final site conditions
3. Existing and proposed topography with a maximum 2 foot contour interval.
4. Evidence on the site plan that no more land than is necessary to provide for the proposed use or development shall be disturbed.
5. Evidence on the site plan that natural drainage ways have been preserved to the extent practicable.
6. An approved tree preservation and protection plan in accordance with VSMP Authority criteria.
7. The location of all infiltrative soils (NRCS Class A and B soils) and an approved preservation and protection plan.

8. The location of any wetlands, intermittent or perennial streams, or other waters to be temporarily protected with a vegetated buffer in accordance with the VSMP Construction General Permit or as required by this ordinance.
9. All buffer areas to streams and wetlands as required in Item 7 and any wetlands or other features to be protected shall be located on the SWPPP and shall be conspicuously flagged or otherwise identified on the site and not disturbed unless authorized by law; the applicant shall notify VSMP Authority upon completion of flagging.
10. A comprehensive drainage plan indicating existing and proposed drainage patterns and identification of all stormwater points of discharge to downstream stormwater conveyance systems.
11. 100-year floodplains
12. Any other soils information as required by VSMP Authority;
13. Other geologic features that may potentially impact the control of erosion and stormwater, or the implementation of the approved plans including but not limited to:
    i. bedrock;
    ii. high water table;
    iii. steep slopes;
    iv. karst formations

J. Any land disturbing activity that requires VSMP Authority Permit coverage that discharges to impaired waters, surface waters included in TMDL watershed, or exceptional waters as defined in the VSMP Construction General Permit shall develop, implement, and maintain a SWPPP that meets the following requirements:
1. Identify the impaired water(s), associated impairment(s), TMDL name(s), TMDL pollutant(s) of concern, and exceptional waters when applicable;
2. Minimizes applicable observed sources identified in the 2012 305(b)/303(d) Water Quality Assessment Integrated Report, minimizes pollutants of concern identified in a TMDL approved prior to July 1, 2014, and is consistent with the assumptions and requirements of all associated TMDL wasteload allocations when applicable;
3. Requires that the application of nutrients be applied in accordance with manufacturer's recommendations (or a Nutrient Management Plan) and shall not be applied during wet weather events when applicable; and
4. A modified inspection schedule shall be implemented, when applicable in accordance with Section I.B. of the VSMP Construction General Permit (modifications to the SWPPP inspection schedule – requirements of § 46-11).

K. SWPPP must be amended when there is a change in design, construction, operation or maintenance that has significant effect on discharge of pollutants not addressed by existing SWPPP (4VAC50-60-54.G).
Reference: VSMP Construction General Permit 4VAC50-60-1170 Section I.B.3 4VAC50-60-54 Stormwater pollution prevention plan requirements.

§ 46-6. STORMWATER MANAGEMENT PLAN

A. As required in § 46-5, and pursuant to 4VAC50-60-55.A, a stormwater management plan shall be developed and referenced into the SWPPP. The stormwater management plan must be appropriately sealed and signed by professional registered in the Commonwealth of Virginia (4VAC50-60-55.C).

B. Site designs shall minimize the generation of stormwater and maximize pervious areas for stormwater treatment. Structural and nonstructural infiltration BMPs shall be used whenever possible to provide stormwater quality and quantity control and groundwater recharge.

C. In addition to the plan requirements outlined in § 46-5, the stormwater management plan shall include the following:

1. Verification of consistency, when applicable, with the approved *SWM Concept plan* required by the VSMP Authority.
2. For land development, the post-developed stormwater runoff shall be treated by an appropriate technology-based water quality BMP(s) based on the imperviousness of the drainage area such as can be found in the Virginia Stormwater BMP Clearinghouse. The use of infiltration or bioretention BMPs will be used wherever possible.
3. A general description of the proposed stormwater management facilities, including:
   a. The type of stormwater facilities;
   b. The location of stormwater facilities, including geographic coordinates;
   c. The acres treated;
   d. The named surface waters to which the facility eventually drains;
4. All necessary documentation and calculations supporting the design and construction of the proposed stormwater management structures, including sufficient details such as cross sections, profiles, dimensions, grades, and other information as needed to ensure that the BMPs are built in accordance with the approved plans and BMP Design Standards and Specifications;
5. All construction record drawings must be submitted to VSMP authority and be appropriately sealed and signed by a professional registered in the Commonwealth of Virginia certifying that the SWM facilities have been constructed in accordance with approved plan (4VAC50-60-55.D).
6. Runoff Reduction Method Compliance Spreadsheet Summary Sheet.
7. A landscaping plan prepared by an individual familiar with the selection of appropriate vegetation for the particular BMP (emergent and upland vegetation for wetlands, woody and/or herbaceous vegetative stabilization and management techniques to be used within and adjacent to the stormwater management facilities, etc.). The landscaping plan must also describe the maintenance of vegetation at the site and what practices should be employed to ensure that adequate vegetative cover is preserved.
8. Identification of all easements provided for inspection and maintenance of stormwater management facilities in accordance with specifications in the Stormwater Management Design Manuals.

9. When Applicable, a copy of the VSMP Authority *SWM BMP Operation and Maintenance Agreement* (§ 46-11) to be recorded in the local land records prior to plan approval. This may be submitted prior to plan approval.
10. When stormwater facilities are proposed on individual residential lots, a copy of the proposed *Residential Lot BMP Inspection and Maintenance Agreement* to be signed by the property owner upon settlement. This may be submitted prior to plan approval.
    Reference: 4VAC50-60-55.B

D. Stormwater management (SWM) plans shall demonstrate compliance with all of the stormwater quality criteria set forth in 4VAC50-60-63 and the stormwater quantity criteria set forth in 4VAC50-60-66 including all flood protection criteria.

E. Increased volumes of sheet flow resulting from pervious or disconnected impervious areas, or from physical spreading of concentrated flow through level spreaders, must be identified and evaluated for potential impacts on down-gradient properties or resources. Increased volumes of sheet flow that will cause or contribute to erosion, sedimentation, or flooding of down gradient properties or resources shall be diverted to a stormwater management facility or a stormwater conveyance system that conveys the runoff without causing down-gradient erosion, sedimentation, or flooding. If all runoff from the site is sheet flow and the conditions of this subsection are met, no further water quantity controls are required.

F. For purposes of computing predevelopment runoff, all pervious lands on the site shall be assumed to be in good hydrologic condition in accordance with the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) standards, regardless of conditions existing at the time of computation.

G. Predevelopment and post development runoff characteristics and site hydrology shall be verified by site inspections, topographic surveys, available soil mapping or studies, and calculations consistent with good engineering practices. Guidance provided in the Virginia Stormwater Management Handbook and by the Virginia Stormwater BMP Clearinghouse shall be considered appropriate practices.

H. Prior to release of the stormwater plan surety bond, two (2) sets of the construction record drawing or as-built of permanent stormwater management facilities, also referred to as "as-built plans" shall be submitted to the VSMP Authority. The construction as-built shall be appropriately sealed and signed by a professional registered in the Commonwealth of Virginia pursuant to Article 1 (§ 54.1-400 et seq.) of Chapter 4 of Title 54.1. of the Code of Virginia, certifying that the stormwater management facilities have been constructed in accordance with the approved plan.
   Reference: 4VAC50-60-108; 4VAC50-60-55.C and D

I. If an applicant intends to meet the water quality requirements of subsection C of this section through the use of off-site compliance options, then a letter of availability from the off-site

provider must be included, and the use of the off-site options shall be in accordance with (**4VAC50-60-55.B9**) **Off-site compliance options** and any additional implementation criteria or guidance provided by the Virginia Water Control Board.

J. Single family residential construction that is less than one acre of disturbance and part of a larger common plan of development may utilize a *SWPPP Template* and a *BMP Implementation Plan* in order to continue VSMP permit coverage under that which was developed for the larger common plan of development, or if that VSMP Permit has been terminated, to obtain new VSMP Permit coverage. The *SWPPP Template* and *BMP Implementation Plan* shall provide detailed information on the implementation of the SWM load and volume reduction BMPs and other requirements for the particular lot or parcel as detailed in the SWPPP and SWM plans of the VSMP Permit for the larger common plan of development. .

1. If the single family construction intends to utilize different BMPs to comply with the development's load and volume reduction requirements than that which was detailed for the individual lot in the SWPPP and SWM Plan for the larger plan of development, then the single family construction shall submit a SWPPP, an ESC Agreement in Lieu of Plan, and a SWM Plan detailing the new BMP strategy in accordance with the provisions of this chapter.
2. If the area of disturbance for the single family construction described in subsection 1 above is one (1) acre or greater, a separate VSMP Authority Permit and SWPPP as identified in § 46-5 may be required by the VSMP Authority.

   Reference: 4VAC50-60-63. Water quality design criteria requirements; 4VAC50-60-65. Water quality compliance; 4VAC50-60-66. Water quantity; 4VAC50-60-69. Offsite compliance options; 4VAC50-60-72. Design storms and hydrologic methods; 4VAC50-60-76. Linear development projects; 4VAC50-60-85. Stormwater management impoundment structures or facilities.

K. The BMP Implementation Plan provides the mechanism by which the stormwater quality and quantity performance goals, and any other requirements of the SWPPP that were applied to the *development project as a whole,* can be carried forward and applied to each individual lot or parcel of the larger common plan of development. The BMP Implementation Plan will allow for the review and approval of the design layout and BMP strategy of the initial permit application without requiring the initial VSMP Permit to obtain coverage for the entire development build-out. The BMP Implementation Plan will provide detailed information on the implementation of the SWM pollutant load and volume reduction BMPs and other requirements for the individual lot or parcel as detailed in the SWPPP and SWM plans of the VSMP Permit for the larger common plan of development.

§ 46-7. POLLUTION PREVENTION PLAN

A. A Pollution Prevention (PP) plan is required for all land disturbing activities with VSMP Permit coverage as required in § 46-5 of this Chapter, and pursuant to 4VAC50-60-56, shall be developed for incorporation into the SWPPP.

B. The pollution prevention plan shall include, at a minimum, such measures to:
   1. Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;
   2. Minimize and manage the normal discharge from drinking water well drilling operations;
   3. Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials present on the site to precipitation and to stormwater; and
   4. Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures.

C. The PP plan shall also include effective best management practices to prohibit the following discharges:
   1. Wastewater from washout of concrete, unless managed by an appropriate control;
   2. Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
   3. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and
   4. Soaps or solvents used in vehicle and equipment washing.

D. The PP plan shall prohibit discharges from dewatering activities, including discharges from dewatering of trenches and excavations unless managed by appropriate controls.

E. The PP plan shall be implemented and updated as necessary throughout all phases of the land-disturbing activity to implement appropriate pollution prevention measures applicable to construction activities.

F. The PP shall be updated as necessary as outlined in Subsection G below.
   Reference: 4VAC50-60-56.A 1-3, B 1-4, and C.

G. Amendments to an approved PP Plan may be required in order to reflect changes in the implementation and an approved ESC or SWM Plan. In addition to the requirements of subsection A and B of this section, the site operator shall document the implementation of the provisions of the PP as follows:
   1. The operator shall amend the PP whenever there is a change in design, construction, operation, or maintenance that may have a significant effect on the discharge of pollutants from the construction activity and that has not been previously addressed in the PP.

2. The PP must be amended if during inspections or investigations by the operator's qualified personnel, or by VSMP Authority, state or federal officials, it is determined that the existing control measures are ineffective in minimizing pollutants in stormwater discharges from the construction site.
3. Where revisions to the PP include additional or modified control measures designed to correct problems identified, and where such revisions to the PP require the VSMP Authority approval, the additional control measures shall be completed within seven calendar days of approval or prior to the next anticipated storm event. If implementation before the next anticipated storm event is impracticable, the situation shall be documented in the PP and alternative control measures shall be implemented as soon as practicable.
4. Revisions to the PP must be dated and signed in accordance with Section III of the VSMP permit.

§ 46-8. TOTAL MAXIMUM DAILY LOAD (TMDL) AND EXCEPTIONAL WATERS (EW) ACTION PLAN.

A. In addition to the requirements of § 46-5, any land disturbing activity that requires VSMP Authority Permit coverage that discharges to impaired waters (identified in the 2012 305(b)/303(d) Water Quality Assessment Integrated Report), surface waters included in a TMDL watershed, or exceptional waters as defined in the VSMP Construction General Permit shall develop, implement, and maintain a SWPPP that meets the following requirements:
   1. Identify the impaired water(s), associated impairment(s), TMDL name(s), TMDL pollutant(s) of concern, and exceptional waters when applicable;
   2. Minimizes applicable observed sources identified in the 2012 305(b)/303(d) Water Quality Assessment Integrated Report, minimizes pollutants of concern identified in a TMDL approved prior to July 1, 2014, and is consistent with the assumptions and requirements of all associated TMDL wasteload allocations when applicable pursuant to *(4VAC50-60-1170 Section I.B.3.a.(2))*;
   3. Requires that the application of nutrients be applied in accordance with manufacturer's recommendations (or a Nutrient Management Plan) and shall not be applied during wet weather events when applicable; and
   4. A modified inspection schedule shall be implemented, when applicable in accordance with Section I.B. of the VSMP Construction General Permit (modifications to the SWPPP inspection schedule – requirements of § 46-12).

§ 46-9. REVIEW OF STORMWATER MANAGEMENT PLAN.

A. The VSMP Authority shall determine the completeness of a plan in accordance with § 46-6 of this Ordinance, and shall notify the applicant, in writing, of such determination, within 15 calendar days of receipt. If the plan is deemed to be incomplete, the above written notification shall contain the reasons the plan is deemed incomplete (4VAC50-60-108.A).

B. Once the applicant has been notified of a complete submittal, the VSMP Authority shall have an additional **60** calendar days from the date of the communication for the review of the plans to determine compliance with the requirements of this ordinance, and to communicate to the applicant the approval or disapproval of the plans.

C. All plans, profiles, and specifications shall be distributed to the appropriate departments and/or state agencies for review and recommendation. Comments and recommendations shall be coordinated at the meeting of the technical review committee. The technical review committee shall review the plan for compliance with this Ordinance.

D. If a plan meeting all requirements is submitted and no action is taken within appropriate time frame, the plan will be deemed approved.

E. The VSMP Authority shall review within 45 calendar days of the date of resubmission any plan that has been previously disapproved.

F. Amendments to an approved SWM Plan may be made only after review and written approval by the VSMP Authority. An approved plan may be modified in accordance with the following:
   1. The person responsible for carrying out the approved plan demonstrates in writing to the VSMP Authority that because of changed circumstances or for other reasons the approved plan cannot effectively be carried out, and has proposed amendments to the plan with all necessary calculations and documents consistent with the requirements of this article (Refer to § 46-6).
   2. The VSMP Authority shall have 60 calendar days to respond in writing either approving or disapproving such requests.
   3. Based on an inspection, the VSMP Authority may require amendments to the approved stormwater management plan to address any deficiencies within a time frame set by the VSMP Authority.
   Reference: 4VAC50-60-108.C

G. The VSMP authority shall require the submission of a construction record drawing for permanent stormwater management facilities in accordance with 4VAC50-60-55. A VSMP authority may elect not to require construction record drawings for stormwater management facilities for which maintenance agreements are not required pursuant to 4VAC50-60-112.
Reference: 4VAC50-60-108.E

H. VSMP Authority Permits are effective for a fixed permit cycle of 5 years. Activities requiring a VSMP Permit may obtain coverage at any time during the 5-year permit cycle and must be renewed if the permit has not been terminated prior to the end of the cycle. The annual permit maintenance fees in § 46-16 apply until the permit coverage is terminated or renewed.

§ 46-10. TECHNICAL CRITERIA FOR REGULATED LAND DISTURBING ACTIVITIES.

A. To protect the quality and quantity of state water from the potential harm of unmanaged stormwater runoff resulting from land-disturbing activities, Caroline County hereby adopts the technical criteria for regulated land-disturbing activities set forth in Part II B of the Regulations, as amended, expressly to include 4VAC50-60-63 [water quality design criteria requirements]; 4VAC50-60-65 [water quality compliance]; 4VAC50-60-66 [water quantity]; 4VAC50-60-69 [offsite compliance options]; 4 VAC 50-60-72 [design storms and hydrologic methods]; 4VAC50-60-74 [stormwater harvesting]; 4VAC50-60-76 [linear development project]; and, 4VAC50-60-85 [stormwater management impoundment structures or facilities], which shall apply to all land-disturbing activities regulated pursuant to this Ordinance, except as expressly set forth in Subsection B of this Section.

B. The standards contained within the Virginia Erosion and Sediment Control Regulations (VESCR), the Virginia Erosion and Sediment Control Handbook (VESCH) (latest edition), the Virginia Stormwater Management Handbook (VSMH) (latest Edition), and any additional guidance provided by the VSMP Authority are to be used by the applicant in the preparation and submission of an erosion and sediment control plan, and by the VSMP Authority in considering the adequacy of a plan submittal. When the standards vary between the publications, the state regulations shall take precedence.

C. The latest approved version of BMPs found on the Virginia Stormwater BMP Clearinghouse Website at http://www.vwrrc.vt.edu/swc are recommended to be used to effectively reduce the Pollutant load and runoff volume as required in this chapter in accordance with the Virginia Runoff Reduction Method.

D. Proposed residential, commercial, or industrial subdivisions shall apply these stormwater management criteria to the development project as a whole. Individual lots or parcels shall not be considered separate development projects, but rather the entire subdivision shall be considered a single development project. Hydrologic parameters shall reflect the ultimate development and shall be used in all engineering calculations.

E. Unless otherwise specified, the following shall apply to the hydrologic computations of this section:
   1. The prescribed design storms are the one-year, two-year, and 10-year 24-hour storms using the site-specific rainfall precipitation frequency data recommended by the U.S. National Oceanic and Atmospheric Administration (NOAA) Atlas 14 and provided in the VA SWM Handbook.
   2. All hydrologic analyses shall be based on the existing watershed characteristics and how the ultimate development condition of the subject project will be addressed.
   3. The U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) synthetic 24-hour rainfall distribution and models, including, but not limited to TR-55 and TR-20; hydrologic and hydraulic methods developed by the U.S. Army Corps of Engineers; or other NRCS standard hydrologic and hydraulic methods, shall be used to conduct the analyses described in this part.
   Reference: 4VAC50-60-62 thru 92.

F. Erosion and Sediment Control (ESC) Requirements:

1. As required in § 46-5, an erosion and sediment control plan shall be developed and referenced into the SWPPP.
2. In addition to incorporation of the appropriate ERI requirements of § 46-5, the ESC plan shall detail the methods and techniques to be utilized in the control of erosion, sedimentation and stormwater consistent with the VESCH and other guidance provided by the VSMP Authority.
3. When the land disturbing activity is part of a larger common plan of development, the ESC plan shall demonstrate compliance with the approved SWPPP for the larger common plan of development , and shall contain the following:
   (a) A statement incorporating by reference the minimum standards of the Virginia erosion and sediment control regulations (4VAC50-30) of the Board.
   (b) Information and/or statements demonstrating compliance with the minimum standards of the erosion and sediment control regulations of the board (4VAC50-30). Compliance with the water quantity requirements of § 10.360 Code of Virginia shall be deemed to satisfy the requirements of 4VAC50-30-40.19 (Minimum Standard 19 of the Virginia Erosion and Sediment Control Regulations).
   (c) A statement by the permitee that all erosion and sediment control measures shall be maintained and that the permittee will inspect the erosion and sediment control measures at least once in every two-week period and within 48 hours following rainstorm events of 0.25 inches or greater during construction to ensure continued compliance with the approved plan. Records of self-inspection shall be maintained on the site and available for review by county inspectors.
   (d) The location, dimensions, and other information as required to ensure the proper construction and maintenance of all temporary erosion and sediment controls necessary to comply with the provisions of this chapter;
   (e) Calculations for sediment traps, basins, outlet protection, etc. as applicable
   (f) A sequence of construction and clear delineation of the initial areas of land disturbance necessary for installation of the initial erosion and sediment control measures such as earthen dams, dikes, and diversions. The areas of initial land disturbance shall be the minimum necessary for installation of the initial erosion and sediment control measures and the delineation should include all areas necessary for such installation, including stockpiles, borrow areas, and staging areas. The sequence should also include the stabilization of these areas immediately upon reaching final grade.
   (g) Clear delineation of the proposed areas of land disturbance and those areas to be protected from construction activity and traffic, including the following:
      i. Minimize the disturbance of slopes 15% or greater.
      ii. Minimize soil compaction and, unless infeasible, preserve topsoil.
   (h) Requirement that final stabilization of disturbed areas shall be initiated immediately upon reaching final grade on any portion of the site, and that temporary stabilization shall be initiated immediately upon areas that may not be at final grade but will remain dormant for longer than 14 days. Stabilization shall be applied within 7 days of initiating stabilization activities.
   (i) A comprehensive drainage plan including:
      i. The existing and proposed drainage patterns on the site;
      ii. All contributing drainage areas to permanent stormwater practices and temporary sediment controls;

iii. Existing streams, ponds, culverts, ditches, wetlands, other water bodies, and floodplains as referenced in the ERI;
iv. Land cover such as forest meadow, and other vegetative areas;
v. Current land use including existing structures, roads, and locations of known utilities and easements;
vi. Sufficient information on adjoining parcels to assess the impacts of stormwater from the site on these parcels;
vii. Proposed buildings, roads, parking areas, utilities, and stormwater management facilities; and
viii. Proposed land use with tabulation of the percentage of surface area to be adapted to various uses, including but not limited to forest or reforestation, buffers, impervious cover, managed turf (lawns), and easements.

(j) The location of any stormwater management practices and sequence of construction;

(k) Temporary natural vegetated buffers in accordance with the requirements of the VSMP Construction General Permit. . These buffers shall be delineated on the ESC Plan and protected with accepted signage, safety fence, or other barrier.

4. In lieu of the plan described in Subsections A and B of this section, single family residential construction that is not part of a larger common plan of development, including additions or modifications to an existing single-family detached residential structures, may execute an ESC Agreement in Lieu of an Erosion and Sediment Control Plan with VSMP Authority.
5. In lieu of the plan described in Subsections A and B of this section, single family residential construction that is part of a larger common plan of development, may execute an ESC Agreement in Lieu of an Erosion and Sediment Control Plan with VSMP Authority that demonstrates compliance with the practices and strategies identified for the lot or parcel in the larger common plan of development SWPPP.
Reference: 4VAC50-60-1170 Section II.A.1

G. As described in 4VAC50-60-48, until June 30, 2019, any land-disturbing activity for which 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 Caroline County as being equivalent thereto, was approved by Caroline County prior to July 1, 2012, and for which no coverage under the general permit has been issued prior to July 1, 2014, shall be considered grandfathered by the Administrator and shall not be subject to the technical criteria of Part II B [of the Regulations], but shall be subject to the technical criteria of Part II C [of the Regulations] for those areas that were included in the approval, provided that the Administrator finds that such 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 Caroline County as being equivalent thereto, (i) provides for a layout and (ii) the resulting land-disturbing activity will be compliant with the requirements of Part II C. In the event that the Caroline County-approved document is subsequently modified or amended in a manner such that there is no increase over the previously approved plat or plan in the amount of phosphorus leaving each point of discharge of the land-disturbing activity through stormwater runoff, and such that there is no increase over the previously approved plat or plan in the volume or rate of runoff, the grandfathering shall continue as before.

1. Until June 30, 2019, for local, state, and federal projects for which there has been an obligation of local, 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, such projects shall be considered grandfathered by [insert locality name] and shall not be subject to the technical requirements of Part II B of the Regulations, but shall be subject to the technical requirements of Part II C of the Regulations for those areas that were included in the approval.
2. For land-disturbing activities grandfathered under this Subsection, construction must be completed by June 30, 2019, or portions of the project not under construction shall become subject to the technical requirements of Subsection (a) above.

H. In cases where governmental bonding or public debt financing has been issued for a project prior to July 1, 2012, such project shall be subject to the technical requirements Part IIC of the Regulations, as adopted by Caroline County in Subsection G of this Section.

I. The VSMP Authority may grant exceptions to the Technical Criteria of § 46-6: SWM Plan requirements. An exception may be granted provided that:
   1. the exception is the minimum necessary to afford relief,
   2. reasonable and appropriate conditions shall be imposed as necessary upon any exception granted so that the intent of this chapter is preserved,
   3. granting the exception will not confer any special privileges that are denied in other similar circumstances,
   4. exception requests are not based upon conditions or circumstances that are self-imposed or self-created, and
   economic hardship alone is not sufficient reason to grant an exception from these requirements.

§ 46-11. LONG-TERM MAINTENANCE OF PERMANENT STORMWATER FACILITIES.

A. Pursuant to 4VAC50-60-58, the Administrator shall require the provision of long-term responsibility for and maintenance of stormwater management facilities and other techniques specified to manage the quality and quantity of runoff. Such requirements shall be set forth in an instrument recorded in the local land records prior to general permit termination or earlier as required by the Administrator and shall at a minimum:
   1. Be submitted to the Administrator for review and approval prior to the approval of the stormwater management plan;
   2. Be stated to run with the land;
   3. Provide for all necessary access to the property for purposes of maintenance and regulatory inspections;
   4. Provide for inspections and maintenance and the submission of inspection and maintenance reports to the Administrator; and
   5. Be enforceable by all appropriate governmental parties.

B. **[Optional]** At the discretion of the Administrator, such recorded instruments need not be required for stormwater management facilities designed to treat stormwater runoff primarily from an individual residential lot on which they are located, provided it is demonstrated to the satisfaction of the Administrator that future maintenance of such facilities will be

addressed through an enforceable mechanism at the discretion of the Administrator (4VAC50-60-112.B).

C. **[Optional - Applicable only if Subsection 1-11.B is included]** If a recorded instrument is not required pursuant to Subsection 1-11.B, the Administrator shall develop a strategy for addressing maintenance of stormwater management facilities designed to treat stormwater runoff primarily from an individual residential lot on which they are located. Such a strategy may include periodic inspections, homeowner outreach and education, or other method targeted at promoting the long-term maintenance of such facilities. Such facilities shall not be subject to the requirement for an inspection to be conducted by the Administrator **[NOTE: May include "or any duly authorized agent of the Administrator"]** (4VAC50-60-114.D).

§ 46-12. MONITORING AND INSPECTIONS.

All erosion and sediment control measures must be periodically inspected by the *individual responsible for carrying out the plan* and properly maintained in effective operating condition in accordance with the approved plans and the VESCH. If site inspections identify control measures that are not operating effectively, maintenance shall be performed as soon as practicable to maintain the continued effectiveness of stormwater controls.
Reference: §62.1-44.15:58 and 4VAC50-30-60

A. All land disturbing activities covered by a Caroline County Land Disturbing Permit or a VSMP Permit shall be inspected by the *individual responsible for carrying out the plan* in accordance with the requirements of the VSMP Construction General Permit and as follows:
   1. At least every seven calendar days; or
   2. At least once every 14 calendar days and within 48 hours following any rainfall event of 0.25 inches or greater.
   3. Where areas have been temporarily stabilized such inspections shall be conducted at least once every month.
   4. The *individual responsible for carrying out the plan* shall maintain records of inspections and maintenance in order to determine whether the measures required in the plan are effective in controlling erosion and sedimentation and to ensure compliance with the approved plan. Records shall be made available to the VSMP Authority inspector upon request.

B. All land disturbing activities covered by a Caroline County Land Disturbing Permit or a VSMP Permit that are required to implement a TMDL and/or an EW Action Plan in accordance with VSMP CGP 4VAC50-60-1170 Section I.B, shall be inspected by the *individual responsible for carrying out the plan* in accordance with the VSMP CGP and the following:
   1. At least once every four days; or
   2. At least once every seven days and no later than 48 hours following any rainfall event of 0.25 inches or more. In the event that a 0.25-inch storm event occurs when there are

more than 48 hours between normal working days, the inspection shall be conducted on the next working day.

C. The VSMP Authority will inspect all regulated land disturbing activities in accordance with the approved alternate inspection schedule to ensure compliance with the approved SWPPP. The owner, permittee or person responsible for carrying out the plan or agreement shall be given notice of the inspection.

D. Inspection of the construction of permanent stormwater management facilities will be required at critical stages of construction by the VSMP Authority Inspector to ensure compliance with the approved plans and BMP specifications. As an alternative, the VSMP Authority may accept the submittal of inspection reports certifying that the stormwater management facilities are being constructed in accordance with the approved plan conducted by a person who is licensed as a professional engineer, architect, landscape architect, or land surveyor pursuant to Article 1 (§54.1-400 et seq.) of Chapter 4 of Title 54.1; a person who works under the direction and oversight of the licensed professional engineer, architect, landscape architect, or land surveyor; or a person who holds an appropriate certificate of competence from the board.

E. Prior to the release of any performance bonds or termination of the Caroline County Land Disturbing Permit or VSMP Authority Permit, the applicant shall submit the required as-built drawings for the stormwater management facilities as described in § 46-6; Final certification of compliance with the construction specifications and integrity of all storm drainage and stormwater management facilities and their appurtenant structures shall be provided on the as-built plans by a professional licensed in Virginia to perform such work.
Reference 4VAC50-60-108 and § 62.1-44.15:40

F. The right-of-entry for the VSMP Authority to conduct such inspections shall be expressly reserved in the permit. The permit holder, or his duly designated representative, shall be afforded the opportunity to accompany the inspectors.
Reference 4VAC50-60-1170.Section III.W, and 62.1-44.15:39

Monitoring and Inspections of Permanent Stormwater Management Facilities

G. Owners of stormwater management facilities shall be responsible for conducting inspections and performing maintenance in accordance with the recorded *Stormwater BMP Maintenance Agreement* as described in § 46-6 and as follows:
   1. Except as provided in item 4 of this section, owners shall conduct and document an annual inspection of stormwater BMPs in accordance with the VSMP Authority *BMP Inspection & Maintenance Program Manual.*
   2. Except as provided in item 4 of this section, owners of stormwater BMPs shall provide for a comprehensive BMP inspection and report in accordance with the VSMP Authority *BMP Inspection & Maintenance Program Manual* at least once every five-

years and submitted to the VSMP Authority. The inspection shall be conducted by an individual who is licensed as a professional engineer, architect, landscape architect, or land surveyor practicing within the area of expertise as described pursuant to Article 1 (§ 54.1-400 et seq.) of Chapter 4 of Title 54.1, a person who works under the direction and oversight of the licensed professional engineer, architect, landscape architect, or land surveyor, or who holds a certificate of competence in Project Inspection for SWM from the board.

Reference 4VAC50-60-114.C

3. Except as provided in item 4 of this section, the property owner or designated agent responsible for inspecting and ensuring all necessary maintenance and repairs to the stormwater management facility in accordance with the recorded maintenance agreement shall keep written records of inspections and maintenance/repairs in accordance with the VSMP Authority *BMP Inspection & Maintenance Program Manual.*
4. Inspection of stormwater management facilities designed to treat stormwater runoff primarily from the individual residential lot on which they are located shall be conducted by the property owner in accordance with VSMP Authority *Residential Lot BMP Inspection & Maintenance Agreement* and the *VSMP Authority BMP Inspection & Maintenance Program Manual* and are not subject to the comprehensive inspection and documentation provisions of items 2 and 3, respectively, of this section.

H. The VSMP Authority will ensure that all stormwater management facilities are being inspected and maintained according to the following:

1. The VSMP Authority shall track the 5-year frequency comprehensive inspection report submittals as required by the recorded maintenance agreement and in accordance with the *BMP Inspection & Maintenance Program Manual.*
2. The VSMP Authority shall conduct maintenance inspections at a minimum of once every 5 years for certain BMPs as defined in the *BMP Inspection & Maintenance Program Manual.*
3. The right-of-entry for VSMP Authority to conduct such inspections shall be expressly reserved in the *Maintenance Agreements*. The owner, or his duly designated representative, shall be afforded the opportunity to accompany the inspectors.

   Reference 4VAC50-60-114.B2 and § 62.1-44.15:39

The VSMP Authority shall notify the property owner or owner's association in writing in accordance with § 46-15 to the address as identified in the *SWM BMP Inspection and Maintenance Agreement* when a determination has been made that the stormwater management facility is in disrepair or is not functioning as intended. The notice shall specify the measures needed to comply with the approved maintenance plan and shall specify the time within which such measures shall be completed. If the responsible party fails to perform such maintenance and repair, the county shall have the authority to initiate

enforcement action in accordance with § 46-15, and perform the work and recover the costs from the responsible party.

§ 46-13. HEARINGS.

Any person subject to the VSMP Authority Land Disturbing Permit or VSMP Authority Permit requirements aggrieved by any action of the VSMP Authority taken without a formal hearing, or by inaction of the VSMP Authority may demand in writing a formal hearing by the VSMP Authority, provided a petition requesting such hearing is filed with the VSMP Authority within 30 days after notice of such action. Any hearings conducted by the VSMP Authority shall be in accordance with § 4VAC50-60-118 and § 62.1-44.15:44 and 45.

The formal hearings held under this chapter shall be conducted pursuant to § 2.2-4009 or 2.2-4020 and may be conducted by the Board itself at a regular or special meeting of the Board, or by at least one member of the Board designated by the chairman to conduct such hearings on behalf of the Board at any other time and place authorized by the Board.

A verbatim record of the proceedings of such hearings shall be taken and filed with the Board. Depositions may be taken and read as in actions at law.

The Board shall have power to issue subpoenas and subpoenas duces tecum, and at the request of any party shall issue such subpoenas. The failure of a witness without legal excuse to appear or to testify or to produce documents shall be acted upon by the Board in the manner prescribed in § 2.2-4022. Witnesses who are subpoenaed shall receive the same fees and mileage as in civil actions.

§ 46-14. APPEALS.

Final decisions of Caroline County under this chapter shall be subject to review by the circuit court of Caroline County, provided an appeal is filed within thirty (30) days from the date of any written decision adversely affecting the rights, duties or privileges of a person engaging in or proposing to engage in land-disturbing activities.
Reference: § 62.1-44.15:46)

§ 46-15. ENFORCEMENT.

A. If, during inspections at any stage of the land disturbing activity, the VSMP Authority determines that the operator has failed to comply with the approved plan, including but not limited to failure to install or properly install stormwater BMPs or erosion and sediment controls, pursuant to 4VAC50-60-116.A, the VSMP Authority shall serve notice upon the permittee or person responsible for carrying out the permit conditions as follows:

1. A Notice to Comply shall be sent as follows:
   (a) Certified mail or return receipt requested, sent to the address specified by the owner or permittee in his application or plan certification; or
   (b) Delivery at the site of the land disturbing activities to the agent or employee supervising such activities.
2. The notice shall specify the measures necessary to comply with the plan or agreement in lieu of a plan and shall specify the time within which such measures shall be completed. **Reference** § 62.1-44.15:37 A
3. Stop Work Order:
   (a) If a permittee fails to comply with a notice to comply issued in accordance with subsection 1 within the time specified, the VSMP Authority may issue an order requiring the owner, permittee, or person responsible for carrying out the approved plan, to cease all land-disturbing activities until the violation of the permit has ceased or the specified corrective actions have been taken. Such orders shall become effective upon service on the person by certified mail, return receipt requested, sent to his address specified in the registration statement, or by personal delivery by an agent of the VSMP authority or Department.
   (b) In addition to the cessation of all land disturbing activities as described in subsection a above, the permitee may also be subject to having the VSMP Authority permit revoked; and furthermore, he shall be deemed to be in violation of this ordinance and, upon conviction, shall be subject to the penalties as provided in the Code of Virginia **or** by this ordinance.
   Reference: §62.1-44.15:63. Penalties, injunctions and other legal actions; §62.1-44.15:48 Penalties, injunctions, and other legal actions
   (c) Where the alleged noncompliance is causing or is in imminent danger of causing harmful erosion of lands or sediment deposition in surface waters within the watersheds of the state, or where the land disturbing activities have commenced without an approved plan, agreement in lieu of a plan or any required permits, such an order may be issued without regard to whether or not the owner or permittee has been issued a notice to comply.

B. If, at any stage of the land disturbing activity, the VSMP Authority determines that the physical conditions on the site are not as stated or shown on the approved erosion and sediment control plan or stormwater management plan, or Caroline County determines that the storm drainage system or stormwater management facility is inadequate or not constructed as shown on the approved stormwater management final plan, the VSMP Authority may refuse to approve further work and the VSMP Authority may revoke existing permits or approvals until a revised stormwater management final plan has been submitted and approved.

C. Commencing Land Disturbing Activities without an Approved Plan or a Permit

1. If land disturbing activities have commenced without an approved plan, agreement in lieu of a plan, Caroline County Land Disturbing Permit, or a VSMP Authority Permit where required, a stop work order may be issued requiring that all land disturbing activities be stopped until an approved plan, an agreement in lieu of a plan or any required permits are obtained.
2. The stop work order shall remain in effect for a period of seven calendar days from the date of service pending application by the director or alleged violator for appropriate relief to the circuit court of the jurisdiction wherein the violation is alleged to have occurred. If the alleged violator has not obtained an approved plan, agreement in lieu of a plan or any required permits within seven days from the date of service of the order, the director may issue an order to the owner requiring that all construction and other work on the site, other than corrective measures, be stopped until an approved plan, agreement in lieu of a plan or any required permits have been obtained. The order shall be served upon the owner by registered or certified mail to the address specified in the permit application or the land records of the county.
3. The owner may appeal the issuance of an order to the circuit court.

D. Maintenance of permanent stormwater facilities

1. If during periodic inspections to ensure that stormwater management facilities are being adequately maintained as designed, the VSMP Authority identifies operational deficiencies and/or determines that the owner of the stormwater management facility has failed to perform maintenance or conduct maintenance inspections in accordance with the recorded *SWM BMP Maintenance and Inspection* agreement, the VSMP Authority shall notify the person or organization responsible for carrying out the requirements of the agreement in accordance with **item A.1** of this section. The notice shall specify the deficiencies, the corrective actions required to restore the facility, and the time frame within which the corrective actions shall be completed.
2. If the individual or organization fails to comply with the notice within the time specified, the VSMP Authority may initiate informal and/or formal administrative enforcement procedures including but not limited to directives issued by the Board in accordance with § 62.1-44.15:25, or civil penalties in accordance with this ordinance and §62.1-44.15:48.

E. Informal and formal administrative enforcement procedures may include:

1. Verbal warnings and inspection reports;
2. Notices of corrective action;
3. Consent special orders and civil charges in accordance with subdivision 7 of § 10.1-603.2:1 and § 10.1-603.14 D 2 of the Code of Virginia;
4. Notices to comply in accordance with § 10.1-603.11 of the Code of Virginia;
5. Special orders in accordance with subdivision 7 of § 10.1-603.2:1 of the Code of Virginia;

6. Emergency special orders in accordance with subdivision 7 of § 10.1-603.2:1 of the Code of Virginia; and
7. Public notice and comment periods for proposed settlements and consent special orders pursuant to 4VAC50-60-660.

Civil and criminal judicial enforcement procedures may include:

1. Schedule of civil penalties in accordance with § 10.1-603.14 of the Code of Virginia;
2. Criminal penalties in accordance with § 10.1-603.14 B and C of the Code of Virginia; and
3. Injunctions in accordance with §§ 10.1-603.12:4, 10.1-603.2:1 and 10.1-603.14 D 1 of the Code of Virginia.

F. Any person violating or failing, neglecting, or refusing to obey any rule, regulation, ordinance, order, approved standard or specification, or any permit condition issued by the VSMP Authority or any provisions of this chapter may be compelled in a proceeding instituted in any appropriate court by the VSMP Authority to obey same and to comply therewith by injunction, mandamus or other appropriate remedy. Nothing in this section shall prevent the VSMP Authority from taking additional enforcement action permitted by state law.

Reference § 62.1-44.15:37 A

G. Any person who violates any provision of this chapter or of any regulations or ordinances, or standards and specifications adopted or approved hereunder, including those adopted pursuant to the a VSMP permit, or who fails, neglects or refuses to comply with any order of the VSMP Authority, the Department, the board, or court, shall be guilty of a class 1 misdemeanor subject to a civil penalty not to exceed $32,500 for each violation within the discretion of the court. Each day of violation of each requirement shall constitute a separate offense.

Reference: § 62.1-44.15:49 and 4VAC50-60-116

1. Violations for which a penalty may be imposed under this subsection shall include but not be limited to the following:
   i. no permit registration,
   ii. no SWPPP,
   iii. incomplete SWPPP;
   iv. SWPPP not available for review;
   v. no approved erosion and sediment control plan;
   vi. failure to install stormwater BMPs or erosion and sediment controls;
   vii. stormwater BMPs or erosion and sediment controls improperly installed or maintained;
   viii. operational deficiencies;
   ix. failure to conduct required inspections;
   x. incomplete, improper, or missed inspections; and

xi. Discharges not in compliance with the requirements of Section 4VAC 50-60-1170 of the VSMP Construction General Permit.

2. The VSMP Authority may issue a summons for collection of the civil penalty and the action may be prosecuted in Caroline County court.
3. In imposing a civil penalty pursuant to this subsection, the court may consider the degree of harm caused by the violation and also the economic benefit to the violator from noncompliance.
4. Any civil penalties assessed by a court as a result of a summons issued by Caroline County shall be paid into the treasury of the VSMP Authority to be used for the purpose of minimizing, preventing, managing, or mitigating pollution of the waters of Caroline County and abating environmental pollution therein in such manner as the court may, by order, direct.

H. Notwithstanding any other civil or equitable remedy provided by this section, any person who willfully or negligently violates any provision of this chapter, any order of Caroline County or the Department, any condition of a permit, or any order of a court shall be guilty of a misdemeanor punishable by confinement in jail for not more than 12 months and a fine of not less than $2,500 nor more than $32,500, either or both.
Reference: §62.1-44.15:58, §62.1-44.15:63, §62.1-44.15:37.

~~§ 46-16. FEES [INCLUSION OF FEES IN THE ORDINANCE IS OPTIONAL].~~

See Chapter 29 Article II, Section I.

~~A. Fees to cover costs associated with implementation of a VSMP related to land disturbing activities and issuance of general permit coverage and VSMP authority permits shall be imposed in accordance with Table 1. **[NOTE: Such fee attributes include the costs associated with plan review, VSMP registration statement review, permit issuance, state-coverage verification, inspections, reporting, and compliance activities associated with land-disturbing activities as well as state program oversight costs.]** When a site or sites has been purchased for development within a previously permitted common plan of development or sale, the Applicant shall be subject to fees ("total fee to be paid by applicant" column) in accordance with the disturbed acreage of their site or sites according to Table 1.~~

~~Table 1: Fees for permit issuance~~

~~Fee type~~	~~Total fee to be paid by Applicant (includes both VSMP authority and Department portions where applicable)~~	~~Department portion of "total fee to be paid by Applicant" (based on 28% of total fee paid*)~~
~~Chesapeake Bay Preservation Act Land Disturbing Activity (not subject to General Permit coverage; sites within designated areas of Chesapeake Bay Act localities with land disturbance acreage equal to or greater than 2,500 square feet and less than 1 acre)~~	~~$290~~	~~$0~~

~~Fee type~~	~~Total fee to be paid by Applicant (includes both VSMP authority and Department portions where applicable)~~	~~Department portion of "total fee to be paid by Applicant" (based on 28% of total fee paid*)~~
~~General / Stormwater Management — Small Construction Activity/Land Clearing (Areas within common plans of development or sale with land disturbance acreage less than 1 acre.)~~	~~$290~~	~~$81~~
~~General / Stormwater Management — Small Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 1 acre and less than 5 Acres)~~	~~$2,700~~	~~$756~~
~~General / Stormwater Management — Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 5 acres and less than 10 acres)~~	~~$3,400~~	~~$952~~
~~General / Stormwater Management — Large Construction Activity/Land Clearing [Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 10 acres and less than 50 acres]~~	~~$4,500~~	~~$1,260~~
~~General / Stormwater Management — Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 50 acres and less than 100 acres)~~	~~$6,100~~	~~$1,708~~
~~General / Stormwater Management — Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 100 acres)~~	~~$9,600~~	~~$2,688~~

~~* If the project is completely administered by the Department such as may be the case for a state or federal project or projects covered by individual permits, the entire applicant fee shall be paid to the Department.~~

~~B. Fees for the modification or transfer of registration statements from the general permit issued by the State Board shall be imposed in accordance with Table 2. If the general permit modifications result in changes to stormwater management plans that require additional review by Caroline County, such reviews shall be subject to the fees set out in Table 2. The fee assessed shall be based on the total disturbed acreage of the site. In addition to the general permit modification fee, modifications resulting in an increase in total disturbed acreage shall pay the difference in the initial permit fee paid and the permit fee that would have applied for the total disturbed acreage in Table 1.~~ **~~[NOTE: Fees specified in this Subsection go to the locality.]~~**

~~Table 2: Fees for the modification or transfer of registration statements for the General Permit for Discharges of Stormwater from Construction Activities~~

~~Type of Permit~~	~~Fee Amount~~
~~General / Stormwater Management — Small Construction Activity/Land Clearing~~	~~$20~~

~~Type of Permit~~	~~Fee Amount~~
~~(Areas within common plans of development or sale with land disturbance acreage less than 1 acre)~~	
~~General / Stormwater Management – Small Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 1 and less than 5 acres)~~	~~$200~~
~~General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 5 acres and less than 10 acres)~~	~~$250~~
~~General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 10 acres and less than 50 acres)~~	~~$300~~
~~General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 50 acres and less than 100 acres)~~	~~$450~~
~~General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 100 acres)~~	~~$700~~

~~C. The following annual permit maintenance shall be imposed in accordance with Table 3, including fees imposed on expired permits that have been administratively continued. With respect to the general permit, these fees shall apply until the permit coverage is terminated.~~ ~~**[NOTE: Fees specified in this Subsection go to the locality.]**~~

~~**Table 3: Permit Maintenance Fees**~~

~~Type of Permit~~	~~Fee Amount~~
~~Chesapeake Bay Preservation Act Land Disturbing Activity (not subject to General Permit coverage; sites within designated areas of Chesapeake Bay Act localities with land disturbance acreage equal to or greater than 2,500 square feet and less than 1 acre)~~	~~$50~~
~~General / Stormwater Management – Small Construction Activity/Land Clearing (Areas within common plans of development or sale with land disturbance acreage less than 1 acre)~~	~~$50~~
~~General / Stormwater Management – Small Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance equal to or greater than 1 acre and less than 5 acres)~~	~~$400~~
~~General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 5 acres and less than 10 acres)~~	~~$500~~
~~General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 10 acres and less than 50 acres)~~	~~$650~~
~~General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 50 acres and less than 100 acres)~~	~~$900~~
~~General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater 100 acres)~~	~~$1,400~~

~~General permit coverage maintenance fees shall be paid annually to Caroline County, by the anniversary date of general permit coverage. No permit will be reissued or automatically continued without payment of the required fee. General permit coverage maintenance fees shall be applied until a Notice of Termination is effective.~~

~~D. The fees set forth in Subsections (a) through (c) above, shall apply to:~~

~~(1) All persons seeking coverage under the general permit.~~

~~(2) All permittees who request modifications to or transfers of their existing registration statement for coverage under a general permit.~~

~~(3) Persons whose coverage under the general permit has been revoked shall apply to the Department for an Individual Permit for Discharges of Stormwater From Construction Activities.~~

~~(4) Permit and permit coverage maintenance fees outlined under § 46-16.C may apply to each general permit holder.~~

~~E. No general permit application fees will be assessed to:~~

~~(1) Permittees who request minor modifications to general permits as defined in § 46-2 of this Ordinance. Permit modifications at the request of the permittee resulting in changes to stormwater management plans that require additional review by the Administrator shall not be exempt pursuant to this Section.~~

~~(2) Permittees whose general permits are modified or amended at the initiative of the Department, excluding errors in the registration statement identified by the Administrator or errors related to the acreage of the site.~~

~~F. All incomplete payments will be deemed as non-payments, and the applicant shall be notified of any incomplete payments. Interest may be charged for late payments at the underpayment rate set forth in §58.1-15 of the Code of Virginia and is calculated on a monthly basis at the applicable periodic rate. A 10% late payment fee shall be charged to any delinquent (over 90 days past due) account. Caroline County shall be entitled to all remedies available under the Code of Virginia in collecting any past due amount.~~

§ 46-16. PERFORMANCE BOND (4VAC50-60-104.D and § 62.1-44.15:34 A [OPTIONAL].

A. No permits shall be issued unless the applicant furnishes a performance guarantee, in accordance with the current Caroline County security policy. This is to ensure that action can be taken by Caroline County, at the applicant's expense, should the applicant fail, after proper notice and within the time specified, to initiate or maintain those measures identified in the approved stormwater management design plan. If Caroline County takes such action upon such failure by the applicant, Caroline County shall collect from the applicant the difference should the amount of reasonable cost of such action exceed the amount of the security held.

B. A certified estimate of costs by the design engineer or land surveyor shall be used to verify costs for the purpose of determining the amount of the performance guarantee required by this section.

C. The performance guarantee furnished pursuant to this section, or the unexpended or unobligated portion thereof, shall be returned to the applicant within sixty (60) days of the

final acceptance of completion of the stormwater management facility by the program administrator. Final acceptance shall be defined as the time at which all clearing and grading on the land development site for roads, lots, and other ancillary activities such as recreational or institutional uses, as defined by the preliminary subdivision, construction, or site plan, on land which drains to the stormwater management facility has been completed and stabilized, and construction certification and as-built plans have been received.

ATTACHMENT 2.B.7

Identifying VSMP-Affected Sections of Existing Caroline County Code of Ordinances and Comprehensive Plan

Currently there are a number of Caroline County Ordinances and sections of the Comprehensive Plan that will be impacted by Virginia's new requirement that the County adopt a Virginia Stormwater Management Program (VSMP). This brief identifies those Ordinances (and Sections of Ordinances) that will have cross-references and impacts on the VMSP, and vice versa.

The objective is to identify portions of the County Code that may be revised in the future to help synchronize and/or streamline the County's development review and approval process while achieving program compliance with various State environmental programs. While not funded under this current program, the County may choose to revise certain sections of the County Code identified in this paper to meet this objective.

County Code

Chapter 45: Erosion and Sediment Control

This is an integral element of the County's stormwater program and is an important ordinance to review to determine if there are any inconsistencies between the E&S ordinance and the VSMP ordinance. The E&S ordinance should also be examined to determine if there are any opportunities to adjust any E&S requirements that may help streamline the County's development process.

Under the draft VSMP, Conservation Concepts recommended that the County adopt a slightly more stringent threshold for lot size compliance (**10,000 square feet for a cursory review and then the State's 1 acre for the full VSMP permit)** than what was included in the model state ordinance. This recommendation will ensure that smaller developments will not have an "incremental" impact on the County's overall compliance with the Chesapeake Bay TMDL requirements and it will also ensure that E&S controls and other requirements outlined in the VSMP are applied more evenly throughout the County.

Recommendation: County staff (or their designee) review the E&S Ordinance for consistency with the VSMP Ordinance and the Virginia E&S requirements, and then conduct revisions to the E&S Ordinance, if necessary. Another option (see Note below), is that the E&S Ordinance could be combined with the VSMP Ordinance, as could the applicable sections of the County Code that address the Chesapeake Bay Preservation Act requirements.

Note: Consolidating these three separate sections of the County's Code would require a wholesale re-write of the Draft VSMP Ordinance submitted to County staff on August 19th, 2013. The existing Consultant's budget and time constraints for meeting the State's

deadlines for submittal of a VSMP Ordinance (December 15, 2013) would not permit doing a "consolidation" until after the State approves the County's VSMP Ordinance in the spring of 2014.

Chapter 98: Subdivision Of Land

Recommendation: The County needs to reference the new VSMP Ordinance requirements in the development of the Procedures for Making and Recording Plats (Section 4) and the General Regulations (Section 5). There may also be a need to reference Approval of Plats (Section 6) in that the "plans" submitted adhere to the VSMP Ordinance regulations. As mentioned below, cross-referencing definitions should be congruent too. There may also need to be reference to the new stormwater management easements as well as the maintenance plans that will be recorded as part of all new deeds.

Chapter 124: Zoning

Article XI – Section 2, Planned Unit Developments - Contents of Development Plan

Recommendation: Zoning Ordinance should cross-reference to the VSMP any new requirements that are needed for this type of development (i.e. Stormwater Pollution Prevention Plan).

Article XV, Section 6 - Flood Hazard Zones

Recommendation: The Applicability (Section 6.2), Compliance and Liability (Section 6.3) and General Standards (Section 6.12) may need references to the VSMP Ordinance. Most standards and permitted uses applications, etc. will not be affected by this new State requirement as they are mostly dictated by Federal Laws.

Article XV – Section 17 - Chesapeake Bay Preservation Area Overlay District - Supplemental Regulations

Recommendation: Cross-reference to the VSMP should be included in this Section of the Zoning Ordinance citing the applicable VSMP regulations and compliance. The specific VSMP regulations should be cited as an integral tool to assist the County in protecting the County's Chesapeake Bay resources. In particular, definitions need to be harmonized, and the applicability (Section 17.3) and Performance Standards and Additional Development Criteria (Section 17.8 & 17.9) should be verified or cross-referenced. Section 17.10, Water Quality Impact Assessment (WQIA) must be consistent with new State regulations and the County's VSMP.

Article XVII - Administration and Enforcement

Recommendation: The Administration and Enforcement of the County's Zoning Ordinance should cross-reference to the VSMP any new requirements that are needed for role of the

County. The VSMP is a new role for the County, therefore there should be some references and legal basis through the Zoning Ordinance for consistency purposes.

Article XVIII, Section 2- Board of Zoning Appeals

Recommendation: The Board of Zoning Appeals, Section 2 (Powers and Duties) should probably reference the legal authorities of the VSMP Ordinance as well. The process for zoning appeals should be reviewed as well in light of the new authorities granted the County under the VSMP.

Article XIX - Amendments

Recommendation: In general, language addressing amendments to the Zoning language in the County's Zoning Ordinance may need to reference the legal statutes that are associated with the VSMP Ordinance and the associated State Regulations.

Comprehensive Plan

A. Chapter 1: Introduction: Natural Resources Overview

Recommendation: Reference to the VSMP should be included in this Section of the Comprehensive Plan as an important tool to assist the County in protecting those areas of the County that fall under the Chesapeake Bay Preservation Act.

B. Chapter 4 - Natural Resources:

1. Soils (p. 4-5)
Recommendation: Reference to the VSMP and the identification of soils with high infiltration (permeability) characteristics. Adding high infiltration soils to County's on-line GIS will assist landowners and developers address the requirement of identifying these soils on required Stormwater Pollution Prevention Plans (SWPPPs).

2. Chesapeake Bay Preservation Act (p. 4-35)
Recommendation: Reference to the VSMP should be included in this Section of the Comprehensive Plan as an important tool to assist the County in protecting those areas of the County that fall under the Chesapeake Bay Preservation Act.

3. Flood Plains (p. 4-11)
Recommendation: Reference to the VSMP should be included in this Section of the Comprehensive Plan as a tool to assist the County in protecting these areas.

4. Water Resources (p. 4-18)
Recommendation: Cross-reference to the VSMP should be included in this Section of the Comprehensive Plan citing the VSMP as an integral tool to assist the County in protecting

the County's surface water resources. Moreover, the map of impaired streams should be discussed in reference to VSMP requirement that impaired or exceptional quality streams be addressed through the developer's submission of a TMDL and Exceptional Waters Action Plan. Moreover, SWPP, ESC and SWM plan submissions will require identification of surface waters that receive stormwater from any development.

5. Groundwater (p. 4-25)
Recommendation: Cross-reference to the VSMP should be included in this Section of the Comprehensive Plan citing the VSMP as an integral tool to assist the County in protecting the County's groundwater resources.

6. Erosion and Sediment Control and Stormwater Management Programs (p. 4-35)
Recommendation: Cross-reference to the VSMP should be included in this Section of the Comprehensive Plan citing the VSMP as an integral tool to assist the County in protecting the County's groundwater resources.

C. Chapter 8: Land Use: Planned Development (p 8-10)

Recommendation: Reference to the VSMP and the higher level of stormwater planning and review and post-development monitoring and inspections required of land under common development should be included in this Section of the Comprehensive Plan as an important tool to assist the County in protecting those areas of the County that fall under the VSMP regulations and the Chesapeake Bay Preservation Act.

General Comments

Definitions

Recommendation: Many sections of the Comprehensive Plan and the County Code and sub-sections like the Zoning and Subdivision Ordinances and Operating Procedures include a list of definitions for how terms are to be interpreted as they pertain to the County. The draft VSMP Ordinance includes quite a few definitions as well. These should be scrutinized for consistency between the various components of the County's growth management policies.

Fees

Recommendation: The State has mandated a "minimum" set of fees for the review and approval of VSMP plans. These fees DO NOT represent the maximum amount a locality may charge for such reviews and approvals, but they do represent the "minimum" amount a locality may charge for the services identified in the tables below.

Caroline County has a schedule of fees (Chapter 29, Article II) that they currently charge for not only current stormwater-related reviews (mostly erosion and sediment control), but

also for broader plan reviews and approvals. These fee structures need to be integrated into the "mandated" State fee structures in order for the County to meet the minimum fee conveyance to the State for VSMP implementation. Guidance from County staff is essential in developing a fee schedule that will maintain the County's attractiveness for developers and future growth.

e-Permitting

Recommendation: The new e-Permitting system that the State is putting into effect, will have many implications on the processes of submitting building and development proposals. The e-Permitting process, which initially will focus on the State's ability to track and collect it's "fees" for their role in the VSMP, will eventually be expanded as a tool to track proposals, their compliance, and maintenance requirements.

County Development Review Process and Procedures

Development Application Review & Approval - Standard Operating & Procedures Manual

Recommendation: Cross-reference to the VSMP should be included in Standard Operating & Procedures Manual citing the VSMP as an integral part of the development process. All fee structures and associated procedures should be consistent between the two documents. Process flowcharts of various development review procedures need to be reviewed and synchronized with VSMP requirements. See GWRC-prepared draft revisions to County Development Review Standard Operating Procedures Manual.

ATTACHMENT 2.B.8

The County of Caroline

DEPARTMENT OF COMMUNITY DEVELOPMENT & PLANNING

DEVELOPMENT APPLICATION, REVIEW & APPROVAL: STANDARD OPERATING & PROCEDURES MANUAL

September 30, 2013

ACKNOWLEDGEMENTS

BOARD OF SUPERVISORS

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ALAN PARTIN, ASSISTANT COUNTY ADMINISTRATOR
MICHAEL A. FINCHUM, DIRECTOR OF PLANNING AND COMMUNITY DEVELOPMENT

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INTRODUCTION

The purpose of this manual is to give an outline of the standard operating procedures (SOP) associated with development applications and to provide a framework of development policies associated with such applications. Each section of the manual shall outline to the steps involved to submit a development project. This manual also shall contain the various forms and documents that are required when submitting a development proposal.

Part 1 of this manual shall outline the steps involved in obtaining a building permit for a residential structures and accessory buildings and/or additions to existing residential structures. This section shall specify the documents needed when submitting a residential building permit. This section shall also outline the procedures to obtain a 911 address for a structure. Additionally, the processes will be accompanied by flowcharts that provide an overview of the entire building permit and addressing processes.

Part 2 of this manual shall outline the steps involved in obtaining a use permit, zoning text amendment and/or rezoning of a parcel. This section defines each of these procedures and specifies the documents required for such processes. Additionally, there will be an accompany flowcharts that provide an overview of the entire zoning process.

Part 3 defines each of these procedures and specifies the documents for such processes. A flowchart will follow the narrative.

Part 4 addresses the subdivision process. This section defines each of the procedures and specifies the documents that are required for the process. As in the other preceding sections flowcharts will provide an overview of the process.

Part 5 deals with the site plan process and the procedures and policies associated with this process. A flowchart will follow the narrative.

Part 6 deals with the process associated with zoning violation and how such violations are handled. This section describes the steps that the County uses in order to abate such violations.

The steps associated with all applications are identified in a sequential process to illustrate the process from the time of application submission to final approval of the development application.

The appendices of this document provides a copy of all development process flow charts, fee schedules, forms and documents necessary to accomplish any of the processes discussed in this manual. These forms are also provided on the County's website, www.visitcaroline.com. Once at the website choose "Government/Citizen Resources" and then choose "Departments" and then choose "Planning and Community Development" and scroll down to the bottom of the page to find a link for a "Zoning Application." The application is in PDF format and is downloadable to your computer. This is the form to be used when applying for building permit, zoning permit, or erosion and sediment control permit. Also there is a link for a land development application. This application is to be used when seeking a rezoning or special exception, creating a subdivision, seeking a variance or an administrative appeal, and a waiver.

The appendices also include the County Planning Commission's existing recommendations regarding the use of "Low-Impact Development (LID)" practices, a recommended LID checklist and some narrative to explain the recommended LID practices; the current County Development Permit and Review Fee Schedule and the State-recommended draft VSMP (stormwater) review fee schedule.

PART 1: RESIDENTIAL BUILDING PERMIT PROCESS

To construct any structure within the boundaries of Caroline County requires a zoning/building permit. The only time just a zoning permit is required is with an agricultural structure constructed under the auspices of an agricultural exemption.

There are several residential building permit processes based upon the type of house being constructed -stick built, manufactured, or modular. Each of the types of building permit processes is described in more detail below. County staff is willing to provide assistance to you in filling out the permit documents and ensuring that all documents are included in your application. At any time during the process you may call staff to obtain more information and/or assistance.

AUTHORITY

The Virginia Uniform Statewide Building Code (USBC) is a state regulation promulgated by the Virginia Board of Housing and Community Development.

WHO IS THE BUILDING OFFICIAL AND WHAT DOES HE DO?

The Building Official, is a member of the Caroline County governmental staff. He is the individual authorized to administer and process building permit applications on behalf of the Caroline County and the State of Virginia. The Building Official's specific powers and duties are specified in Section 106 of the USBC.

WHERE DO I FILE MY APPLICATION?

File your completed application with the Department of Planning & Community Development.

IS THERE A FILING FEE?

Yes. There is a fee for all building permits issued by Caroline County. At time of filing a permit a non-refundable deposit is required (typically no more than $200). At the time the permit is processed the remaining portion of the fee is due.

WHAT IS AND WHEN IS A LIMITED POWER OF *A TTORNEY REQUIRED?*

A Limited Power of Attorney (LPOA) is a document that authorizes an individual to act on the behalf of another person. A LPOA is needed to accompany your application if a structure is being constructed on your property by a third party. In this situation you will need a LPOA from the property owner stating that he has authorized you to act on his behalf as it relates to the application or you will need to sign the building permit application.

WHAT HAPPENS NEXT?

The staff will review the application to verify its completeness. Once the application is deemed complete the application will be reviewed by the Building Plan Reviewer, the Environmental Planner and the Zoning Technician. Any issues that arise out this review will result in a telephone call to you or your representative to make adjustments as required. Assuming that there are no such problems the permit should be ready within 21 days after its submission.

IF MY APPLICATION IS DENIED, CAN THE DECISION BE APPEALED?

Yes, if you disagree with the Building Official's decision, you have the right to appeal to the Local Building Code Board of Appeals. You must exercise your right to appeal no later than 90 days after the Building Official has filed its decision.

WHAT IS A CERTIFICATE OF OCCUPANCY AND/OR ZONING COMPLIANCE (CO/CZC)?
Upon completion of the structure a final inspection is conducted by the Building Official or his designee (if non-residential project the Zoning Administrator or designee accompanies for site compliance). If all work has been performed in a satisfactory manor the Building Official will issue you a certificate of occupancy (CO). This states that the structure has been constructed in accordance with the USBC and may be occupied.

BUILDING PERMIT PROCESS FOR A TRADITIONAL SINGLE FAMILY DWELLING

1. Customer is greeted by FCS (FCS) when entering the building.
2. Customer inquiries are to how to obtain a Building Permit Application.
3. FCS provides the customer the appropriate application and other forms necessary to file a building permit.
4. Customer submits a Building Permit Application to the front counter.

FCS shall review the Building Permit Application to ensure it is compete. In making this determination, FCS shall use the appropriate checklist. These checklists have been developed for use by the FCS to ensure that Building Permit Applications are complete at the time of submission. Blank copies of these checklists are available for copying in the appendix of this manual.

IF AN APPLICATION IS NOT COMPLETE THEN THE FCS SHALL NOT ACCEPT THE BUILDING PERMIT APPLICATION

- ☑ A copy of the Site Checklist. Completed and signed by surveyor/engineer for 3-acres or less.
- ☑ A copy of your Utility permit If you are building in Lake Land 'Or or Caroline Pines.
- ☑ A copy of the building permit from the Caroline Pines Property Owner's Association if building in Caroline Pines.
- ☑ A completed *Agreement in Lieu of* a *Plan* signed by the Owner of the property with the name of the RLD listed.
- ☑ A copy of the deed.

If complete, FCS date stamps the application, collect fees, and provides customer with a receipt.

PLEASE NOTE: In addition to the checklist above, a complete Building Permit Application is to be filled out and signed by the applicant/owner of the property which includes the following information:

- Owner of property listed
- Builder, if applicable. If owner is acting as general contractor, owner must sign affidavit and must be witnessed by signature party. If owner is purchasing a manufactured home, must provide contractor information for person setting manufactured home.
- Property information to include tax map or parcel number, current uses, structures, and address if previously assigned.
- Type of Permit (residential, mobile home, addition, accessory building, etc.)
- All information related to the type of construction **MUST BE** filled out.
- Square footage on **EACH FLOOR**
- All subcontractors must provide State Contractors License Number, State Tradesman Certification

Number (if applicable), and Caroline County Business License Number. Hardcopies of current classification and licenses must be provided if not on file.

5. FCS forwards the completed Building Permit application to the Building Plan Reviewer and a copy of the site plan to the Environmental Planner.

6. The Building Planner Reviewer evaluates the building plan using the following:
   a) Floor layout with dimensions and square footage;
   b) Use of each room;
   c) Footing plan showing size and location of reinforcements;
   d) Specify the size, spacing and location of all floor joists, beams, headers, rafters, ceiling joists, etc.;
   e) If using engineered wood products (Le. TGI, LVL, floor and *lor* roof truss) provide a layout and shop drawings. The stamped set of drawings shall be required on the site at time of framing inspection;
   f) Show location of smoke detectors;
   g) Window and door locations and sizes;
   h) Show the location and specify the support for all point loads. Show the loads and how they transfer to the foundation;
   i) Wall section view with exterior elevations for the entire structure.

7. If the application is not correct the Building Plan Reviewer contacts the applicant to address outstanding issues.

8. If the application is correct the Building Plan Reviewer signs the application and enters it into the computer system.

9. Building Plan Reviewer then forwards the application to the Zoning Technician for Review.

10. Environmental Planner forwards the site plan with modifications, if any, to the Zoning Technician.

11. Zoning Technician reviews the Building Permit Application for the following:

   a) Tax Map Number;
   b) Acreage on application matches real estate information in computer;
   c) Land Use;
   d) Zoning District;
   e) Set-back and minimum parcel size;
   f) Floodplain
   g) Chesapeake Bay
   h) Highway Overlay
   i) Proffer calculation/Conditions;
   j) GDP/Plat Review;
   k) No 2nd House on parcel;
   l) VDOT Entrance (if applicable);
   m) Valid Septic Permit (if applicable);
   n) Sign (if applicable);

12. If the application is not correct, the Planning Technician contacts the applicant to address outstanding issues.

13. If the application is correct the Zoning Technician signs the application and enters it into the computer system.

14. Zoning Technician then forwards the application to the FCS for final processing.

   a) FCS logs all flags in the Computer system and types the permit.

   b) Customer picks up permit and starts construction.

See Appendices, Section A, Figure 1 flow chart which illustrates the building permit process for single-family dwellings.

BUILDING PERMIT PROCESS FOR A MANUFACTURED HOME

1. Customer is greeted by FCS when entering the building.
2. Customer inquiries are to how to obtain a Building Permit Application.
3. FCS provides the customer the appropriate application and other forms necessary to file a building permit.
4. Customer submits a Building Permit Application to the front counter.

FCS shall review the Building Permit Application to ensure it is compete. In making this determination, FCS shall use the appropriate checklist. These checklists have been developed for use by the FCS to ensure that Building Permit Applications are complete at the time of submission. Blank copies of these checklists are available for copying in the appendix of this manual.

IF AN APPLICATION IS NOT COMPLETE THEN THE FCS SHALL NOT ACCEPT THE BUILDING PERMIT APPLICATION

• Checklist for a Manufactured Home

- ☑ Permit Application (Only fill out what applies to what you are doing.)
- ☑ Two (2) copies of the Septic and Well Permit.
- ☑ Two (2) copies of the Floor Plan and the Year/Model/Color & Size of Home.
- ☑ The manufactured home must meet HUD standards. It must be manufactured after June 15, 1976.
- ☑ Manufacturer's Booklet showing block and tie down diagrams and other required specifications.
- ☑ Two (2) copies of a site plan drawn to scale showing where the home will be located and the distances from all property lines. Anytime the lot is less than 3-acres the site plan must be a surveyed house location, prepared by a surveyor or engineer licensed by the Commonwealth of Virginia.
- ☑ A copy of your Utility permit If you are building in Caroline Pines.
- ☑ An *Agreement in Lieu of* a *Plan* signed by the owner of the property.
- ☑ If building in Caroline Pines, a copy of the building permit from theCaroline Pines Property Owner's Association.
- ☑ A copy of the deed.
- ~~☑ Bonding for Soil Erosion and Sediment Control~~
- ☑ A $200.00 plan review fee.
- ☑ If complete, FCS date stamps the application.

PLEASE NOTE: In addition to the checklist above, a complete Building Permit Application is to be filled out and signed by the applicant/owner of the property and includes the following information:

- Owner of property listed
- Builder, if applicable. If owner is acting as general contractor, owner must sign affidavit and must be witnessed by Signature party. If owner is purchasing a manufactured home, must provide contractor information for person setting manufactured home.
- Property information to include tax map or parcel number, current uses, structures, and address if previously assigned.
- Type of Permit (residential, mobile home, addition, accessory building, etc.)
- All information related to the type of construction **MUST BE** filled out.
- Square footage on **EACH FLOOR**
- All subcontractors must provide State Contractors License Number, State Tradesman Certification Number (if applicable), and Caroline County Business License Number. Hardcopies of current classification and licenses must be provided if not on file.

5. FCS forwards the completed Building Permit application to the Building Plan Reviewer and a copy of the site plan to the Environmental Planner.

6. The Building Plan Reviewer evaluates the building plan using the following:

a) Two Copies of the floor plan, year, make, model, color and size
b) Manufacturers booklet showing the block and tie down diagrams
c) A copy of the DMV Title for the manufactured home
d) 2003 IRC standards apply
e) All footings and piers shall be a minimum 18 inches below grade
f) Lot graded to provide positive drainage away from foundation
g) All porches, decks, etc., shall comply with Section R314-315 of Code
h) All mechanical and plumbing shall comply with IMC and IPC respectively
i) All electrical shall comply with 2002 NEC

7. If the application is not correct the Building Plan Reviewer contacts the applicant to address issues.

8. If the application is correct the Building Plan Reviewer signs the application and enters it into the computer system.

9. Building Plan Reviewer then forwards the application to the Zoning Technician for Review.

10. Environmental Planner forwards the site plan with modifications if any to the Zoning Technician.

11. Planning Technician reviews the Building Permit Application for the following:

a) Tax Map Number
b) Acreage on application matches real estate information in computer
c) Land Use
d) Zoning District
e) Set-back and minimum parcel size
f) Floodplain
g) Chesapeake Bay
h) Highway overlay
i) Proffer calculation/Conditions
j) GDP/Plat Review
k) No 2nd House on parcel
l) VDOT Entrance (if applicable)
m) Valid Septic Permit (if applicable)
n) Sign (if applicable)

12. If the application is not correct the Planning Technician contacts the applicant to address outstanding issues.

13. If the application is correct the Zoning Technician signs the application and enters it into the computer system.

14. Zoning Technician then forwards the application to the FCS for final processing.

15. FCS logs all flags in the Computer system and types the permit.

16. Customer picks up permit and starts construction.

See Appendices, Section A, Figure 2 flow chart which illustrates the building permit process for manufactured homes.

INSPECTION SCHEDULING FOR RESIDENTIAL CONSTRUCTION

OVERVIEW

During the construction process of a residential structure, the applicant shall be responsible to call the County Building Official to schedule all inspections that are required. The inspection request must be made no later than 12:30 pm the day before the inspection is to occur. The County's Environmental Planner in the Dept. of Planning & Community Development shall conduct all erosion and sediment control & VSMP inspections. Upon completion of the inspection(s), the results shall be entered by the FCS in to the computer system. See Appendices, Section A, Figure 3 flow chart which outlines the Inspection Scheduling Process.

SEQUENCE OF INSPECTION SCHEDULING FOR RESIDENTIAL CONSTRUCTION

Generally the inspections required to be performed for a residential structure are as follows:

- Initial Erosion &Sediment Control
- Footing, Backfill & Foundation
- Setback
- Groundwork
- Rough-ins for Framing, HVAC, etc.
- Temp/P.S. Rough-in
- Insulation
- Final Structural
- Temporary Erosion & Sediment Control
- Certificate of Occupancy & Zoning Compliance Issued
- Final Erosion & Sediment Control & Bond Release

After each inspection the FCS enters the inspection tracking system. Inspection must be called in no later than 12:30 p.m. the day before the inspection is anticipated to occur. When a project fails to pass inspection, all deficiencies shall be in writing. Failed inspections cannot be rescheduled within 48 hours of the original inspection unless otherwise approved by the inspector. A separate fee shall be accessed for each re-inspection required.

See Appendices, Section A, Figure 4 for the flowchart of this process.

BUILDING PERMIT PROCESS FOR AN ACCESSORY BUILDING OR ADDITION TO EXISTING RESIDENTIAL DWELLING

1. Customer is greeted by FCS when entering the building.

2. Customer inquiries to how to obtain a Building Permit Application for an Addition or Accessory Building.

3. FCS informs the customer that he/she needs to use an existing surveyor plat and to draw to scale the location of the addition and/or accessory building.
   a) The drawing needs to show the exact distance (to the nearest whole inch) to all property lines (side, front and rear).
   b) The drawing needs to show the size of the addition.
      i. If the existing house is using a septic system, and the addition is for another bedroom, a copy of the existing septic permit is required.
      ii. If the approved septic permit is for fewer bedrooms than proposed, then the applicant shall have to apply to amend the septic permit at the Health Department.
   c) If a septic system is used, the drawing needs to show the approximate location of the septic tank and drainfield.
   d) If a well is used for water the drawing needs to show the well location.

4. FCS provides the customer the appropriate application and other forms necessary to file a building permit.

5. Customer submits a Building Permit Application to the front counter.

6. FCS shall review the Building Permit Application to ensure it is compete.

In making this determination, FCS shall use the appropriate checklist. These checklists have been developed for use by the FCS to ensure that Building Permit Applications are complete at the time of submission. Blank copies of these checklists are available for copying in the appendix of this manual.

IF AN APPLICATION IS NOT COMPLETE THEN THE FCS SHALL NOT ACCEPT THE BUILDING PERMIT APPLICATION

Checklist for an Accessory Building or Addition to an existing residential dwelling

- ☑ Permit Application (completely filled out)
- ☑ Two (2) copies of Building/Construction Plans.
- ☑ Two (2) copies of an existing surveyor plat with all dimensions of the proposed addition or accessory building drawn to scale. The drawing shall show where the addition or accessory building will be located and ~ the distances from property lines (to the nearest whole inch).
- ☑ *Agreement in Lieu of* a *Plan* signed by the owner (if applicable).
- ☑ *A* $100.00 plan review fee.
- ☑ If complete, FCS date stamps the application, collect fees, and provide customer with a receipt.

7. FCS forwards the application to the Building Plan Reviewer and a copy of the site plan to the Environmental Planner.

8. The Building Plan Reviewer evaluates the building plan using the following:

   a) Floor layout with dimensions and square footage;
   b) Use of each room;
   c) Footing plan showing size and location of reinforcements;

d) Specify the size, spacing and location of all floor joists, beams, headers, rafters, ceiling joists, etc.;
e) If using engineered wood products (Le. TGI, LVL, floor and *lor* roof truss) provide a layout and shop drawings. The stamped set of drawings shall be required on the site at time of framing inspection;
f) Show location of smoke detectors;
g) Window and door locations and sizes;
h) Show the location and specify the support for all point loads.
i) Show the loads and how they transfer to the foundation;
j) Wall section view with exterior elevations for the entire structure

9. If the application is not correct the Building Plan & Environmental Plan Reviewers contact the applicant to address outstanding issues.

10. If the application is correct the Building Plan & Environmental Plan Reviewers sign the application and enters it into the computer system.

11. Building Plan Reviewer then forwards the application to the Zoning Technician for Review.

12. Environmental Planner forwards the site plan with modifications if any to the Zoning Technician.

13. Zoning Technician reviews the Building Permit Application for the following:
    a) Tax Map Number;
    b) Acreage on application matches real estate information in computer;
    c) Land Use;
    d) Zoning District;
    e) Set-back and minimum parcel size;
    f) Floodplain
    g) Chesapeake Bay
    h) Highway Overlay
    i) Proffer calculation/Conditions;
    j) GDP/Plat Review;
    k) No 2nd House on parcel;
    l) VDOT Entrance (if applicable);
    m) Valid Septic Permit (if applicable);
    n) Sign (if applicable).

14. If the application is not correct the Zoning Technician contacts the applicant to address outstanding issues.

15. If the application is correct the Zoning Technician signs the application and enters it into the computer system.

16. Zoning Technician then forwards the application to the FCS for final processing.

17. FCS logs all flags in the Computer system and types the permit.

18. Customer picks up permit and starts construction.

ASSIGNING A 911 ADDRESS

The following steps describe the process of receiving unique address(es) for all developed property in the County.

1. Customer is greeted by FCS when entering the building

2. Permit is issued to customer by FCS

3. FCS forwards permit file to Planning Technician who assigns a Tax Map File

4. Zoning Technician monitors current building permits for single family dwellings without a 911 address on a weekly basis. Once foundation inspection has passed, zoning technician pulls tax map file.

5. Zoning Technician use site plan and tax maps to ascertain exact location of parcel needing address and to gather information on adjacent parcels.

6. Zoning Technician then locates the center of an existing structure on the adjacent parcel.

7. Using a scale the zoning technician then measures from the center of the existing foundation on an adjacent parcel to the center of the new foundation. This measurement is the distance along the road**

8. The Zoning Technician gets front setback measurement from site plan. (The front setback is the measurement from the front of the foundation to the road right-of-way.)**

   If any of this information is not available in the office or from files or the resulting information is not consistent then a site visit may be necessary

9. Zoning Technician uses the 911 book to find an adjacent 911 number and makes a copy of that page

10. Zoning Technician fills in all required information on the *Request and Purchase Order for* 911 *Maintenance* form (PO), including request number, all measurements, 911 map page number, 911 map section number, street name, etc.

11. Using measurements from above no. 7 and 8 above, scale out new foundation location on the copy of the 911 page showing the distances on the scale drawing

12. Zoning Technician attaches the map with the scaled drawing to the PO and faxes to consultant (MSAG)

13. Consultant will e-mail new address to staff

14. Zoning Technician contacts (by phone or e-mail) general contractor and/or homeowner with 911 address information and adds the address to the permit file in AS400. Address is also noted on PO and in tax map file.

15. The total time for this process from foundation inspection is approximately four (4) weeks.

See Appendices, Section A, Figure 5 flow chart which outlines the 911 property addressing process.

PART 2 -SPECIAL EXCEPTIONS, REZONINGS & ZONING TEXT AMENDMENTS

INTRODUCTION

If the use intended for your property is not permitted as a matter of right in the Zoning Ordinance, you will need to apply for a rezoning or a special exception permit. The County's ordinance has specific development standards required. If your property was previously rezoned or you have an existing special exception permit and you wish to amend or change the proffers or conditions placed on the property you will need to file for a proffer/condition modification.

Each of the processes is described in more detail below. County staff is willing to provide assistance to you in determining the best solution for the development request you are seeking. At any time during the process you may call staff to obtain more information and/or assistance.

ZONING AUTHORITY

The power to zone stems from the inherent power vested by the State General Assembly in the Caroline County Board of Supervisors (BOS). The zoning regulations for Caroline County have been enacted by the BOS in the form of Zoning and Subdivision Ordinances. The Zoning Ordinance was adopted March 27, 1980 and most recently revised as of November 16, 2010[1]. The Subdivision Ordinance was adopted February 23, 1973, and most recently revised through January 13, 2009[2].. The general purpose of zoning is to control and order the growth and development of Caroline County in accordance with the Comprehensive Plan. The Comprehensive Plan is required by State law to be updated every five years.

WHAT IS THE PLANNING COMMISSION?

The Planning Commission (PC) is a body established by State law. The mission of the PC is to promote the orderly development of the County and its environs. The PC serves in an advisory capacity to the BOS. The PC must always abide by and comply with the powers granted to it by the Zoning Ordinance and the State-enabling act.

WHO ARE THE MEMBERS OF THE OF THE PLANNING COMMISSION?

The Planning Commission consists of six residents of Caroline County appointed by the BOS. Each member is also a resident of the election district of the Board member who appoints him. At least one-half of the members appointed shall be owners of real property. The members shall be qualified by knowledge and experience to make decisions on community growth and development. There is no limit on the number of terms that a member may serve.

WHO IS THE PLANNING DIRECTOR AND WHAT DOES HE/SHE DO?

The Planning Director, a member of the Caroline County governmental staff. He/She is the individual authorized to administer and process zoning applications on behalf of the Planning Commission and the BOS.

WHAT IS THE PLANNING COMMISSION EMPOWERED TO DO?

The Planning Commission is empowered by *Section 15.2-2160 -2307* of the *State Code* to:

1. Exercise general supervision of, and make regulations for, the administration of its affairs.
2. Authorize the development of studies and surveys for the preparation of a comprehensive plan.
3. Appoint subcommittees and/or advisory committees.

[1] http://www.visitcaroline.com/zoningordinance.htm
[2] http://www.visitcaroline.com/subdivisionordinance.htm

4. Review the adopted comprehensive plan every 5 years.
5. To review and submit an annual capital improvement plan to the BOS.
6. To review and recommend adoption of subdivision, zoning, Chesapeake 8ay and other land development regulations and policies.
7. To approve subdivision plats.

WHERE DO I FILE MY APPLICATION?

File your completed application with the Department of Planning & Community Development by close of business on 3rd Wednesday of each month. The BOS typically meets on the 2nd and 4th Thursday of each month . A schedule of BOS meeting dates can be found on the County website at http://www.visitcaroline.com/meetingsch.html and the development review schedule for the PC and application deadline dates for 2013 (found at http://www.visitcaroline.com/planmtgs13.pdf) is in the appendix.

IS THERE A FILING FEE?

Yes. There is a non-refundable filing fee which must be paid when you file your application. Fees vary based upon the application. A copy of the 2013 fee schedule can be found at: http://www.visitcaroline.com/feeschedule.pdf.

WHAT IS AND WHEN IS A LIMITED POWER OF ATTORNEY REQUIRED?

A Limited Power of Attorney (LPOA) is a document that authorizes an individual to act on the behalf of another person. A LPOA is needed to accompany your application in the following circumstances:

1. If property is being purchased subject to obtaining a variance, the contract should give you the right to apply for a variance in the name of the seller. In this situation you will need a LPOA from the property owner stating that he has authorized you to act on his behalf as it relates to the application.

2. If you have decided to have an agent represent you during the Public Hearing, then a LPOA will then be needed which authorizes your agent to represent your interests as it relates to the application.

WHAT HAPPENS NEXT?

The staff will review the application to verify its completeness. Once the application is accepted, it will be placed on the Technical Review Committee (TRC) agenda for the meeting corresponding to the application deadline date. Once the TRC has reviewed the application its recommendations will be forward to the applicant and the PC and/or BOS. Then legal notices advertising the public hearing will be published in the local paper once a week for two consecutive weeks. In addition, the Secretary will notify, by letter, all adjacent property owners of your request. You will receive notice of the date, time, and place for the public hearing approximately two weeks prior to the meeting. The planning staff will prepare a staff report for the PC and BOS concerning your request, which will include pertinent code sections and factual statements. The applicant will receive a copy of this report approximately one week prior to the meeting. Members of the County staff or PC/BOS may inspect your property prior to the public hearing to better appreciate the requested action. However, the members do not generally meet with the applicant during the inspection or prior to the public hearing.

WHAT HAPPENS AT THE PUBLIC HEARING?

The Chairman will call the meeting to order, welcome the attendees, have the PC and/or BOS attendance noted by the Secretary and then introduces the Board members, staff and legal advisor. Following this, the Chairman will present procedural information to aid applicants and interested parties in their presentations and outline of the procedure used for the public hearing. For each application the Planning Staff will provide a

verbal summary of the application and present zoning maps as well as pertinent other visual data. The Chairman will then open the public hearing and the applicant will be provided the opportunity to appear in his own behalf, or be represented by an agent. County representatives and the general public will then be given an opportunity to express their views. The applicant will then be given an opportunity for a rebuttal or summary. The Chairman will close the public hearing and the PC and or BOS will deliberate and provide a decision in the form of a resolution approved by at least 3 members of the Board. Applications are considered by the Board in the order that the Secretary formally receives them.

DO I HAVE TO ATTEND THE PUBLIC HEARING?

Yes, you as the applicant and anyone representing you have to be present at the hearing.

DO I NEED A LAWYER OR OTHER PROFESSIONAL REPRESENTATIVE?

There is a "yes" or "no" answer to this question. Many individual property owners appear in their own behalf, but if you are more comfortable with professional representation to assist with your application and answer questions on your behalf that is certainly satisfactory (see LPOA on page 5).

HOW LONG DO I HAVE TO WAIT FOR A DECISION?

As soon as the public hearing for your request is ended, the PC and/or the BOS will start its deliberating and begin weighing the evidence presented. If the appeal is extremely complex, the PC/Board may vote to continue the public hearing until another meeting.

WILL THE COUNTY SUPPORT MY APPLICATION?

The decision of the County to recommend the granting or denial of an application is made by the Planning Director in consultation with his/her staff. This decision is not made until after the application has been filed and advertised for public hearing.

WILL THE LACK OF SUPPORT BY THE PLANNING DIRECTOR WEIGH HEAVILY AGAINST APPROVAL OF MY APPLICATION BY THE PLANNING COMMISSION AND/OR BOARD OF SUPERVISORS?

In considering an application, the PC and/or the BOS will take all aspects of a case into consideration before reaching a final decision. The recommendation of the Planning Director is only one of many things considered. However, having staff support of your request is an important factor to gain approval by the PC and/or the BOS.

IF MY APPLICATION IS DENIED, CAN THE DECISION BE APPEALED?

Yes, if you disagree with the Board's decision, you have the right to appeal to the Circuit Court. You must exercise your right to appeal no later than 30 days after the Board has filed its decision.

CAN I ASK THE BOARD TO RECONSIDER MY APPLICATION?

If your application is denied, the Ordinance does not permit the same application to be considered by the PC and/or Board for one-year from the date of action. Once the Board makes a decision, only the Circuit Court has the authority to act.

OTHER PERTINENT INFORMATION

Exhibits and photographs can be beneficial to the graphical presentation of your request. Petitions and written statements of support from adjacent property owners can be submitted. The planning staff will include these items as part of the public record.

TYPES OF ZONING APPLICATIONS

WHAT IS A REZONING?

A rezoning is required if your proposed use is permitted neither by right nor as a special exception under your property's current zoning classification. If you wish to apply reasonable conditions in addition to the regulations of your desired zoning classification, you may submit these "proffers" in writing with your application. Typically, proffers relate to such things as use restrictions, timing/phasing of development, off-site improvements, additional aesthetic features, capital contributions and similar items not a part of the normal plan approval process.

WHAT IS A USE PERMIT?

Some uses, because of their unique nature or their impact on adjacent land uses, are not permitted by right, but may, under certain conditions be deemed acceptable in certain locations. If such is the case with the use you have proposed for your property, a special exception, special use or conditional use permit is required.

WHAT IS A ZONING TEXT AMENDMENT?

Some uses are not listed nor can they be classified under an existing use in the zoning ordinance. In these cases staff will assist you in determining the appropriate zoning text amendments to permit your proposal as a use under the special exception permit process. In these unique situations you will be filing for a zoning text amendment as well as a special exception permit.

WHAT IS A PROFFER AMENDMENT?

Often a property has been rezoned with proffers attached to the rezoning. During the course of the development of the property a situation occurs that generates the need to modify the proffered conditions. In these instances the applicant will request the County modify the proffers to address the particular situation(s). In order for this to occur the applicant will have to submit a proffer amendment application to the County, which provides the reasons for the modification(s) to the original proffered conditions.

Note: For *brevity and clarity the following procedural discussion references* a *zoning process but the procedures and requirements for special exceptions, zoning text amendment(s) and proffer amendment(s) are the identical.*

THE ZONING PROCESS

The following are the steps involved in the zoning process. See Appendices, Section A, Figure 6 flow chart illustrating the zoning process.

1. Customer is greeted by FCS when entering the building.

2. Customer inquiries to how to rezone his property.

3. FCS informs the customer that he/she needs to set up a pre-application meeting with a member of the planning department.

4. FCS takes down the contact information forwards it to the appropriate staff personnel.

5. A Planner calls the customer to set up a pre-application meeting.

6. During the Pre-application meeting the following points need to be covered:

    a) Check ZONING MAP to determine current zoning of subject property.
    b) Check the appropriate sections of the County's Zoning Ordinance to determine if proposed use is

permitted by right or by special exception permit.

c) Obtain: application(s), and Schedule of Planning Commission meetings (including deadlines for submissions).

d) Discuss best approach for obtaining approval of proposed activities. Keep in mind that, although many factors are considered in review of rezoning and special exception permit requests, the most important ones are:

   i. Conformance with the Comprehensive Plan
   ii. Potential service, fiscal, transportation and environmental impacts
   iii. Relationship of use to its surroundings
   iv. Conditions which would mitigate potential negative impacts

e) A traffic analysis may also be required, and is **always** required for proposed activities which involve:

   i. 1,000 vehicle trips in a 24-hour period
   ii. 100 vehicle trips in a peak hour
   iii. A subdivision where 50 or more lots are proposed

7. At the conclusion of the pre-application conference, the applicant shall be given the application forms and any other relevant information.

8. Customer submits the application at the front counter.

9. FCS reviews the submission to ensure it is complete using the following checklist:
   a) Complete application (no blanks) with signature(s);
   b) Narrative describing the proposed use and its impact on the County;
   c) 21 copies of the General Development Plan (GOP);
   d) Application fee.

10. FCS date stamps the application and provides the customer a receipt.

11. FCS forwards the application to the Planning Technician.

12. Planning Technician logs the applications onto the computer system and forwards the applications to the zoning technician.

13. Zoning Technician prepares the Technical Review Committee (TRC) packets, agenda, and distributes them to the members of the TRC.

14. The TRC is composed of County and non-County agencies. The County departments are as follows:

    a) Planning & Zoning
    b) Building
    c) Public Utilties
    d) Public Works
    e) Economic Development
    f) Parks & Recreation
    g) School Board
    h) Sheriff's Office
    i) Fire & Rescue
    j) Environmental

The non-County agencies are as follows:

k) Virginia Department of Transportation (VDOT)
l) Virginia Department of Health (VDH)
m) Fort A.P. Hill
n) Rappahannock Electric Cooperative (REC)

15. TRC comments shall be forwarded to the applicant or applicant's representative within 10 business days after the meeting.

16. Planning Technician prepares the staff report shell and e-mails it to the Planner.

17. The Planner shall prepare a staff report to address the request and how it complies with the County's Comprehensive Plan and the Code of Caroline County and the Caroline County Zoning Ordinance.

18. The Planning Technician prepares the public notice and places the appropriate notices in the newspaper, and notifies adjacent property owners by letter as required by Title 15.2-2204, Code of Virginia, 1950 as amended.

19. The applicant's engineer/representative shall revise any plan(s) and proffers based upon the comments generated by the TRC and submit such revisions to the FCS at least 15 days prior to the Planning Commission Public Hearing.

20. FCS shall date stamp such revisions and forward them to the appropriate Planner.

21. The Planner shall review the revisions and make any final edits to the staff report per the revisions.

22. The Planner shall forward the final version of the staff report to the Planning Technician.

23. Planning Technician prepares the Planning Commission Agenda.

24. Planning Technician prepares the Planning Commission packets for distribution. The packets include an agenda, minutes from the previous meeting(s), applications and staff reports, and any other informational item(s).

25. The applicant and/or their representative are required to attend the Planning Commission Hearing.

26. The public hearing shall be conducted in the following manner:

    a) Staff provides a brief overview of the staff report
    b) The applicant and/or representative provides a brief summary
    c) The Public Hearing is declared Open
    d) The Public is permitted to address the Commission in relation to the application under consideration
    e) The Public Hearing is closed
    f) The applicant and/or representative may address any issues raised by the public
    g) Planning Commission discussion & decision. The Commission may recommend that the application is forwarded to the BOS with a:
        i. favorable recommendation as submitted;
        ii. favorable recommendation subject to certain conditions or revisions;
        iii. unfavorable recommendation (denial);
        iv. table the application to a future meeting;
            - if tabled, the Commission must act within 90-days of the Public Hearing;

- The Commission will likely recommend denial if there are still unresolved issues at the end of the 90day period;
- The 90-day deadline does not apply if the applicant requests or concurs with the further extension.

27. Upon a recommendation from the Planning Commission the application is forwarded to the BOS.

28. The Planning Technician prepares the public notice and places the appropriate notices in the newspaper, and notifies adjacent property owners by letter as required by Title 15.2-2204, Code of Virginia, 1950 as amended.

29. The Planning Technician prepares the applications to be submitted to the County Administrator's Assistant for the Board Packet.

30. The applicant and/or their representative are required to attend the BOS Public Hearing.

31. The public hearing shall be conducted in the following manner:

    a. Staff provides a brief overview of the staff report

    b. The applicant and/or representative provides a brief summary

    c. The Public Hearing is declared Open

    d. The Public is permitted to address the Board in relation to the application under consideration

    e. The Public Hearing is closed

    f. The applicant and/or representative may address any issues raised by the public

    g. Board of Supervisor discussion & decision. The Board may;
        i. approve as submitted;
        ii. approve subject to certain conditions or revisions;
        iii. deny;
        iv. table the application to a future meeting;
            - if tabled, the Board must act within 1-year of the application filing date;
            - The 1-year deadline does not apply if the applicant requests or concurs with a further extension.

32. Upon final action by the BOS, the Planning Technician prepares a To-Witt. The To-Witt is a letter stating the request, the Board's action and any conditions or proffers which is part of the approval.

33. The applicant shall record the To-Witt with the Office of the Caroline County Circuit Court Clerk within 30-days of receipt and provide the Planning Technician a copy of the recorded document.

34. The next step is to develop the site and construction plans that must be approved by the Department of Community Development and Planning.

See Appendices, Section A, Figure 6 flow chart illustrating the zoning process.

PART 3 -VARIANCES AND APPEALS OF ADMINISTRATIVE DECISIONS

INTRODUCTION

This brochure explains the zoning appeals process for Caroline County as well as your rights and responsibilities in filing an appeal. Helpful suggestions are provided to assist you, or your representative, to prepare an application and presentation for the Board.

ZONING AUTHORITY

The power to zone land stems from the inherent power vested by the Virginia General Assembly in the Caroline County BOS. The zoning regulations for Caroline County have been enacted by the BOS in the form of Zoning and Subdivision Ordinances. The Zoning Ordinance was adopted March 27, 1980 and most recently revised as of November 16, 2010[3]. The Subdivision Ordinance was adopted February 23, 1973, and most recently revised through January 13, 2009[4]. The general purpose of zoning is to control and order the growth and development of Caroline County in accordance with the Comprehensive Plan. The Comprehensive Plan is required by State law to be reviewed (and may be updated) every five years.

WHO IS THE ZONING ADMINISTRATOR AND WHAT DOES HE/SHE DO?

The Zoning Administrator, a member of the Caroline County governmental staff, is the individual authorized to administer, interpret and enforce the Zoning Ordinance on behalf of the BOS. The Zoning Administrator has the authority and power to order, in writing, the remedy of any condition found in violation of the Ordinance and to bring legal action to ensure compliance with its provisions should that become necessary. The Zoning Administrator's authority is strictly defined. The Administrator, by law, does not have discretionary powers and therefore, can only approve a request that clearly conforms to the requirements of the Zoning Ordinance. This provision of the Ordinance is deliberate in that it is designed to prevent favoritism, unequal treatment to landowners in similar circumstances, and other abuses, which stem from the unfettered exercise of administrative powers.

WHAT HAPPENS WHEN UNIQUE CIRCUMSTANCES OCCUR?

The General Assembly recognized that zoning regulations could not be written to accommodate every set of circumstances, which arise when the BOS attempts to plan and control the use of land. That is, a zoning ordinance cannot provide for all conceivable situations to which it must apply. There are times when an interpretation is needed to determine if a variance in the application of specific terms of the zoning ordinance is appropriate and justified. Provisions must be made to balance the strict application of the ordinance with the purpose and intent established by the ordinance. Such judgments are the responsibility of the Board of Zoning Appeals (BZA). The powers and duties of the Board of Zoning Appeals are discussed in the following pages.

WHAT IS THE BOARD OF ZONING APPEALS (BZA)?

The Board of Zoning Appeals is a semi-judicial body established by State law and County Ordinance to provide relief in special circumstances where the exact application of the terms of the ordinance would be unduly restrictive and cause an undue hardship. Without this body to decide on such matters, solutions to unique development problems would have to be accomplished by numerous detailed amendments to the ordinance or through a lawsuit. Therefore, the function of the BZA is to hear and decide upon the interpretation and the application of the provisions of the zoning ordinance in these cases. Although the BZA has certain discretionary powers in making its decisions, these powers have definite limits. The BZA must always abide by and comply with the powers granted to it by the Zoning Ordinance and the State-enabling act.

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[3] http://www.visitcaroline.com/zoningordinance.htm
[4] http://www.visitcaroline.com/subdivisionordinance.htm

WHO ARE THE MEMBERS OF THE BOARD OF ZONING APPEALS?

The Board of Zoning Appeals consists of seven residents[5] of Caroline County appointed by the Judge of the Circuit Court. There is no limit on the number of terms that a member may serve. A member may be removed by the court for just cause upon written charges and after a public hearing. Owing to the care exercised by the court in its appointments to the BZA, it has never become necessary to remove a member from the Caroline County Board.

WHAT IS THE BZA EMPOWERED TO DO?

The Board of Zoning Appeals is empowered by *Section 15.2-2309* -15.22315 of the *State Code and Article XVIII, Section* 4 *of the Zoning Ordinance* to:

1. Hear and decide on variances to the Zoning Ordinance.

2. Hear and decide on appeals from any order, requirement, decision or determination made by the Zoning Administrator in the enforcement or interpretation of the zoning ordinance. (The Zoning Administrator is responsible for interpreting the terms and conditions that are not specifically addressed in the Ordinance. The Administrators decision must be issued in writing and is filed and available for review. The written interpretation must include the rationale for the decision and cite specific policies of the BOS as expressed in the adopted Comprehensive Plan that support the interpretation.)

NOTE: Due to Recent Virginia Supreme Court Rulings the only time that the BZA is empowered to act is when all beneficial use of the property has been eliminated.

WHAT IS AN ADMINISTRATIVE APPEAL?

An Administrative Appeal results when the Zoning Administrator has issued an interpretation and/or an opinion regarding the requirements of the ordinance. As the recipient of such an interpretation or opinion, you have the right to file an appeal to the Board of Zoning Appeals within thirty (30) days of the date of the interpretation/opinion.

WHAT IS A VARIANCE?

A variance permits a reasonable deviation from the provisions in the zoning ordinance regulating the size or area of a lot or parcel of land, or the size, area, bulk or location of a building or structure when the strict application of the ordinance would result in unnecessary or unreasonable hardship to the property owner, and such need for a variance is not shared generally by other properties, and provided that such a variance is not contrary to the intended spirit and purpose of the ordinance, and if granted, would result in substantial justice being done. A granted variance becomes a vested right that is transferred with the property.

WHAT IS THE PURPOSE OF A VARIANCE?

A variance is designated as an escape hatch from the literal terms of the ordinance, which, if strictly applied, would deny a property owner beneficial, use of the land and thus amount to confiscation. Thus a variance can render justice in unique and individual cases of unnecessary or unreasonable hardship resulting from a literal application of the zoning ordinance.

[5] http://www.visitcaroline.com/zoningboard.html

WHERE DO I FILE MY APPLICATION?

File your completed application with the BZA Secretary by close of business on 1st Wednesday of each month (four (4) weeks prior to the scheduled meeting date). The Board meets on the 2nd Thursday of each month. A schedule of meeting dates and application deadline dates for the current year is attached for your reference.

IS THERE A FILING FEE?

Yes. There is a non-refundable filing fee of $600.00, which must be paid when you file your application.

WHAT IS AND WHEN IS A LIMITED POWER OFATTORNEY REQUIRED?

A Limited Power of Attorney (LPOA) is a document that authorizes an individual to act on the behalf of another person. A LPOA is needed to accompany your application in the following circumstances:

1 If property is being purchased subject to obtaining a variance, the contract should give you the right to apply for a variance in the name of the seller. In this situation you will need a LPOA from the property owner stating that he has authorized you to act on his behalf as it relates to the application.

2 If you have decided to have an agent represent you during the Public Hearing, then a LPOA will then be needed which authorizes your agent to represent your interests as it relates to the application.

WHAT HAPPENS NEXT?

The staff will review the application to verify its completeness. Once the application is accepted, it will be placed on the agenda for the meeting corresponding to the application deadline date. Legal notices advertising the public hearing will be published in the local paper once a week for two consecutive weeks. In addition, the Secretary will notify, by letter, all adjacent property owners of your request. You will receive notice of the date, time, and place for the public hearing approximately two weeks prior to the meeting. The secretary to the Board will prepare a staff report for the Board members concerning your request, which will include pertinent code sections and factual statements. The applicant will receive a copy of this report approximately one week prior to the meeting. Members of the Board normally inspect your property prior to the public hearing to better appreciate the circumstances occasioning your appeal and the land or structure involved. However, the members do not generally meet with the applicant during the inspection or prior to the public hearing.

WHAT HAPPENS AT THE PUBLIC HEARING?

The Chairman will call the meeting to order, welcome the attendees, have the Board attendance taken by the Secretary and then introduce the Board members, secretary and legal advisor. Following this, the Chairman will present procedural information to aid applicants and interested parties in their presentations. This includes a brief description of the BZA and its duties, an outline of the procedure used for the public hearing and a description of the findings required for any case action before the Board. For each application the Secretary will provide a verbal summary of the application and present zoning maps as well as pertinent other visual data. The Chairman will then open the public hearing and the applicant will be provided the opportunity to appear in his own behalf, or be represented by an agent. County representatives and the general public will then be given an opportunity to express their views. The applicant will then be given an opportunity for a rebuttal or summary. The Chairman will close the public hearing and the Board will deliberate and provide a decision in the form of a resolution approved by at least 3 members of the Board. Applications are considered by the Board in the order that the Secretary formally receives them.

DO I HAVE TO ATTEND THE PUBLIC HEARING?

Yes, you as the applicant and anyone representing you have to be present at the hearing.

DO I NEED A LAWYER OR OTHER PROFESSIONAL REPRESENTATIVE?

There is a "yes" or "no" answer to this question. Many individual property owners appear in their own behalf, but if you are more comfortable with professional representation to assist with your application and answer questions on your behalf that is certainly satisfactory (see LPOA on page 5).

HOW LONG DO I HAVE TO WAIT FOR A DECISION?

As soon as the public hearing for your request is ended, the Board will start its deliberating and begin weighing the evidence presented. If the appeal is extremely complex, the Board may vote to continue the public hearing until another meeting, but in the great majority of cases the applicant can expect a decision that same night.

WILL THE COUNTY SUPPORT MY APPLICATION?

The decision of the County to recommend the granting or denial of an application is made by the Zoning Administrator in consultation with his/her staff. This decision is not made until after the application has been filed and advertised for public hearing. Generally, the Zoning Administrator's interpretation of the Ordinance follows strict guidelines and he/she only recommends the granting of a variance or exception for those applications that very clearly meet every requirement, in his/her opinion, to the fullest extent.

WILL THE LACK OF SUPPORT BY THE ZONING ADMINISTRATOR WEIGH HEAVILY AGAINST APPROVAL OF MY APPLICATION BY THE BOARD?

As noted previously, the Judge of the Circuit Court appoints the members of the Board and the Board is a quasi-judicial body, therefore the Board has no allegiance to automatically follow the recommendation of the Zoning Administrator. In considering an application, the Board will take all aspects of a case into consideration before reaching a final decision. The recommendation of the Zoning Administrator is only one of many things considered. Those factors that determine an "unnecessary hardship" are unique for each application (see discussion of "unnecessary hardship" on Page ___).

WHAT ARE SOME OTHER THINGS I SHOULD DO?

Review the following standards or guidelines the Board is required to use in rendering a decision and consider how these affect your request:

For a Variance: According to Section *15.2-2309* of *the Code* of *Virginia, 1950* as amended, which pertains to powers and duties of boards of zoning appeals, in order to grant a variance the Board must find:

1. That the ordinance effectively prohibits or unreasonably restricts the use of the property, or that the granting of the variance will alleviate a clearly demonstrable hardship approaching confiscation (as distinguished from a special privilege or convenience sought by the applicant) because of a condition which is unique to the particular parcel of land (size, shape, topography, use of adjoining property).
2. That the strict application of the ordinance would produce undue hardship.
3. That such hardship is not shared generally by other properties in the same zoning district and the same vicinity.
4. That the authorization of such variance will not be of substantial detriment to adjacent property and that the character of the district will not be changed by the granting of the variance.

5. That the condition or situation of the property concerned or the intended use of the property is not of so general or recurring nature as to make reasonably practicable the formulation of a general regulation to be adopted as an amendment to the ordinance.

    - As noted earlier the Virginia Supreme Court has ruled that in order to be granted a variance all beneficial use of the property has been eliminated due to the requirements of the ordinance.

For an Appeal:

1. The Board will examine the language of the ordinance to determine whether the language is clear or is subject to more than one interpretation.

2. If, in the opinion of the Board, the language is clear, the Board will require the applicant to show that his case is not within the intent of the regulation. In these cases, the Board will assume that the administrative decision is correct and the applicant will bear the burden of proof.

3. If the language of the ordinance is unclear, the Board will inquire as to whether the decision made by the official involved is consistent with previous administrative determinations in similar situations.

4. If the administrative decision is consistent with prior decisions, the applicant will prevail only if the administrative decision is not within the intent and purpose of the ordinance and, therefore, so arbitrary or unreasonable that the Board of Zoning Appeals must substitute its own interpretation and overturn the administrative decision. If the administrative decision is both consistent and reasonable, the Board will uphold it.

5. If the administrative decision is inconsistent with prior decisions, the Board will carefully examine all factors involved to ensure that the appearance of an arbitrary decision is overcome by a legitimate attempt to further the intent and purpose of the ordinance.

In applying these guidelines, the Board will consider any pertinent factors that arise during the public hearing.

IF MY APPLICATION IS DENIED, CAN THE DECISION BE APPEALED?

Yes, if you disagree with the Board's decision, you have the right to appeal to the Circuit Court. You must exercise your right to appeal no later than 30 days after the Board has filed its decision.

CAN I ASK THE BOARD TO RECONSIDER MY APPLICATION?

If your application is denied, the Ordinance does not permit the same application to be considered by the Board for one-year from the date of action. Once the Board makes a decision, only the Circuit Court has the authority to act.

OTHER PERTINENT INFORMATION

Exhibits and photographs can be beneficial to the graphical presentation of your request. Petitions and written statements of support from adjacent property owners can be submitted. The Secretary will hold these items at least 30 days. The original documents can be returned after such time, upon the request of the applicant. A decision of the BZA is not bound by precedent as in a court of law. Each case has its own unique set of facts and the Board must determine the merits of your case on the information that is presented at the public hearing.

It is strongly recommended that you, your representative, or local elected official not attempt to contact the members of the Board regarding the application prior to the public hearing.

The decision of the Board will be based only on the facts presented at the public hearing where all members, as well as the public at large, have an opportunity to consider the information presented. Decisions of the Board are based on the merits of each case and political issues are never a factor. There is no exact definition of an "unnecessary hardship". Some guidelines, based on legal precedent, for applying the concept of unnecessary hardship are:

1. The premises cannot be used in a manner permitted by the zoning ordinance unless the variance is granted.
2. A strict application of the terms of the zoning ordinance precludes its use for any purpose to which the land is reasonably adopted.
3. Inability to put the property to its most profitable use does not constitute "unnecessary hardship".
4. Mere inconvenience to the applicant is not sufficient ground for determining an "unnecessary hardship". In granting a variance the BZA may not make any decision that is contrary to the purpose and intent of the Zoning Ordinance. For example, the BZA has no authority to permit a business to be established in a residential district or a residence to be established in a business or industrial district. To do so would require an amendment to the Ordinance; this requires the BOS approval. If property is being purchased subject to obtaining a variance, the contract should give you the right to apply for a variance in the name of the seller.

Below is a step by step description of the Variance Process.

Note: For brevity and clarity the following procedural discussion references a *variance process but the procedures for an appeal are identical.*

THE VARIANCE PROCESS

The following are the steps involved in the zoning process. See Appendices, Section A, Figure 7 flow chart which outlines the BZA variance and appeals process.

1. Customer is greeted by FCS when entering the building.

2. Customer inquiries to how to obtain a variance for his property.

3. FCS informs the customer that he/she needs to set up a preapplication meeting with a member of the planning department.

4. FCS takes down the contact information forwards it to the appropriate staff personnel.

5. A Planner calls the customer to set up a pre-application meeting.

6. During the Pre-application meeting the following points need to be covered:

   a) Check ZONING MAP to determine current zoning of subject property;

   b) Check the appropriate sections of the County's Zoning Ordinance;

   c) Discuss the process associated with this request;

   d) Obtain application packet.

7. Customer submits the application at the front counter.

8. FCS reviews the submission to ensure it is complete using the following checklist:

   a) Complete application (no blanks) with signature(s);

   b) Narrative describing the need for a variance;

   c) 12 copies of the site survey;

   d) Application fee.

9. FCS date stamps the application and provides the customer a receipt.

10. FCS forwards the application to the Planning Technician.

11. Planning Technician logs the applications onto the computer system and assigns a case number.

12. BZA Secretary who prepares the staff report shell and e-mails it to the Planner.

13. Planner conducts a site visit.

14. Planner reviews the application vs. the criteria required to be met in order to qualify for a variance.

15. Planner shall prepare a staff report to address the request and how it meets the criteria to obtain a variance.

16. Staff report e-mailed to BZA Secretary.

17. BZA Secretary prepares the public notice ands forwards it to Planner to review.

18. BZA Secretary sends final public notice to Planning Technician

19. Planning Technician forwards the Public Notice to local newspaper *(Caroline Progress)*

20. BZA Secretary notifies adjacent property owners by letter as required by Title 15.2-2204, Code of Virginia, 1950 as amended.

21. BZA Secretary mails and/or e-mails staff report to applicant.

22. BZA Secretary prepares the Board of Zoning packets for distribution. The packets include an agenda. minutes from the previous meeting(s). applications and staff reports. and any other informational item(s).

23. The applicant and/or their representative are required to attend the Planning Commission Hearing.

24. The public hearing shall be conducted in the following manner:

   a) Staff provides a brief overview of the staff report
   b) The applicant and/or representative provides a brief summary
   c) The Public Hearing is declared Open
   d) The Public is permitted to address the BZA in relation to the application under consideration
   e) The Public Hearing is closed
   f) The applicant and/or representative may address any issues raised by the public.

25. BZA discussion & decision;

a) Approved as submitted;
b) Approved with conditions;
c) Denial;
d) Table the application to a future meeting.

26. Upon final action by the BZA. the BZA Secretary prepares the To-Witt. The To-Witt is a letter stating the request. the Board's action and any conditions which is part of the approval.

27. The applicant shall record the To-Witt with the Office of the Caroline County Circuit Court Clerk within 30-days of receipt and provide the BZA Secretary a copy of the recorded document.

28. The next step is to develop the site and construction plans that must be approved by the Department of Community Development and Planning.

See Appendices, Section A, Figure 7 flow chart which outlines the BZA variance and appeals process.

PART 4. SUBDIVISION PROCESS

INTRODUCTION

There are 2 types of subdivisions in Caroline County. The first type is a family subdivision. In most instances, a family division is administratively approved. The second type is a by-right division based upon the zoning district that the subject parcel of land is located. Under the by-right divisions, there are major and minor subdivisions. Only minor subdivisions are administratively approved. The preliminary plat for a major subdivision is approved by the Planning Commission. However, preliminary plats require all site construction plans to be approved prior to the Planning Commission acting on the preliminary plat. The processes for each of these types of subdivisions are outlined herein and a flow chart is provided.

SUBDIVISION AUTHORITY

The power to regulate subdivision of land stems from the inherent power vested by the State General Assembly in the Caroline County BOS. The subdivision regulations for Caroline County have been enacted by the BOS in the form of a subdivision ordinance. The Subdivision Ordinance was adopted February 23, 1973, and most recently revised through January 13, 2009[6]. The general purpose of subdivision ordinance is to control and order the growth and development of Caroline County in accordance with the zoning ordinance and the Comprehensive Plan. The Comprehensive Plan is required by State law to be reviewed (and may be updated) every five years. This is further addressed in the *Code of Virginia, Volume 3A, Title* 15.2, *Chapter* 22, *Article* 6 (aka 15.2-2240) 1950, as amended.

WHO IS THE SUBDIVISION AGENT AND WHAT DOES HE DO?

The Subdivision Agent, a member of the Caroline County governmental staff, is the individual authorized to administer, and enforce the subdivision ordinance on behalf of the BOS. The Subdivision Agent has the authority and power to order, in writing, the remedy of any condition found in violation of the Ordinance and to bring legal action to ensure compliance with its provisions should that become necessary. The Subdivision Agent's authority is strictly defined. The Subdivision Agent, by law, does not have discretionary powers and therefore, can only approve a request that clearly conforms to the requirements of the Subdivision Ordinance. This provision of the Ordinance is deliberate in that it is designed to prevent favoritism, unequal treatment to landowners in similar circumstances, and other abuses, which stem from the unfettered exercise of administrative powers.

WHAT IS A FAMILY SUBDIVISION?

A family subdivision is a division of land where both the grantor and grantees are members of the same immediate family. The immediate family includes the following: grandparent, mother, father, son, daughter, brother, sister, grandchild, aunts, uncles, nieces, and nephews. Once the land is given to the immediate family member it cannot be sold to a non-immediate family member for 5 years. Family subdivisions as a by-right use in the Rural Preservation (RP) zoning district only. Family divisions cannot occur in any other zoning district. Family divisions are approved administratively.

WHAT IS MINOR SUBDIVISION?

A minor subdivision is a division of land where only two (2) lots are created. One new lot and the reminder of the land left after the division has occurred. Both parcels have new creation dates as a result of this division. Each lot must meet the dimensional criteria as specified in the zoning ordinance for the district in which it is

[6] http://www.visitcaroline.com/subdivisionordinance.htm

located. Family divisions which meet the criteria in the ordinance are also considered minor subdivisions as it relates to being approved administratively.

WHAT IS A MAJOR SUBDIVISION?

A major subdivision is a division of land where three (3) or more lots are created. This type of development requires the installation of a road constructed to Virginia Department of Transportation (VDOT) standards.

WHERE DO I FILE MY APPLICATION?

File your completed application with the FCS of the Department of Planning & Community Development, located on 233 West Broaddus Avenue, Bowling Green, VA 22427. Submission dates are in the appendix of this manual.

IS THERE A FILING FEE?

Yes. There is a non-refundable filing fee[7]. Consult with a member of the department for the appropriate fee(s).

WHAT IS AND WHEN IS A LIMITED POWER OF ATTORNEY REQUIRED?

A Limited Power of Attorney (LPOA) is a document that authorizes an individual to act on the behalf of another person. A LPOA is needed to accompany your application in the following circumstances:

1. If property to be subdivided has not yet been purchased and is subject to County approval prior to executing the contract, then current owner (seller) should give you the right to apply for a variance in the name of the seller. In this situation you will need a LPOA from the property owner stating that he has authorized you to act on his behalf as it relates to the application.

2. If you have decided to have an agent represent you, then a LPOA will then be needed which authorizes your agent to represent your interests as it relates to the application.

WHAT HAPPENS NEXT?

The staff will review the application to verify its completeness. Once the application is accepted, and is classified as either a family, minor or major subdivision the review process shall begin. If this is an administratively-approved subdivision (minor or family), a case planner will conduct a review of the application and plat to ensure all items have been addressed and are correct.

If this is a major subdivision it will be placed on the agenda for the meeting corresponding to the application deadline date. You will receive notice of the date, time, and place for the Planning Commission action on the application. The planner will prepare a staff report for the Commission members concerning your request, which will include pertinent code sections and factual statements. The applicant will receive a copy of this report approximately one week prior to the meeting. Members of the Commission may inspect your property prior to the meeting to better appreciate the request. However, the members do not generally meet with the applicant during the inspection or prior to the Commission meeting.

WHAT HAPPENS AT THE PLANNING COMMISSION?

The Chairman will call the meeting to order, welcome the attendees, have the Board attendance taken by the Secretary and then introduce the Board members, Planning Staff and Legal Counsel. For each subdivision application the Planning staff will provide a verbal summary of the application and present zoning maps as

[7] http://www.visitcaroline.com/feeschedule.pdf

well as other pertinent data. The Chairman will then open the public meeting. Subdivisions are not required to be approved via a public hearing and therefore there is no requirement that members of the public (including the applicant) have the right to speak or address the Commission. However, members of the commission may ask questions of staff or the applicant. The Chairman will then close the public meeting and the Commission will deliberate and provide a decision in the form of a resolution approved by at least 3 members of the Commission. Applications are considered by the Commission in the order that the Secretary formally receives them.

DO I HAVE TO ATTEND THE PUBLIC HEARING?

Yes, you as the applicant and/or anyone representing you have to be present at the hearing.

DO I NEED A LAWYER OR OTHER PROFESSIONAL REPRESENTATIVE?

There is a "yes" or "no" answer to this question. Many individual property owners appear in their own behalf, but if you are more comfortable with professional representation to assist with your application and answer questions on your behalf that is certainly satisfactory (see LPOA).

HOW LONG DO I HAVE TO WAIT FOR A DECISION?

As soon as the public meeting for your request is ended, the Commission will start its deliberating and begin weighing the evidence presented. If the application is extremely complex, the Board may vote to continue the public hearing until another meeting, but in the great majority of cases the applicant can expect a decision that same night.

WILL THE COUNTY SUPPORT MY APPLICATION?

The decision of the County to recommend the granting or denial of an application is made by the Subdivision Agent in consultation with his/her staff. This decision is not made until after the application has been filed and placed on the agenda. Generally, the Subdivision Agent's interpretation of the ordinance follows strict guidelines and he/she only recommends the granting of approval of the subdivision request.

WILL THE LACK OF SUPPORT BY THE SUBDIVISION AGENT WEIGH HEAVILY AGAINST APPROVAL OF MY APPLICATION BY THE BOARD?

There is a "yes" or "no" answer to this question. The Board of Supervisors appoints the members of the Planning Commission; therefore the Commission has no allegiance to automatically follow the recommendation of the Subdivision Agent. However, if your application does not meet the minimum requirements of the ordinance, the Subdivision Agent shall recommend denial of the application. In this case the Commission has not choice other than deny the request. However, in considering an application, the Commission will take all aspects of a case into consideration before reaching a final decision. The recommendation of the Subdivision Agent is only one of many things considered.

IF MY APPLICATION IS DENIED. CAN THE DECISION BE APPEALED?

Yes, if you disagree with the Commission's decision, you have the right to appeal their decision to the Circuit Court of Caroline County. You must exercise your right to appeal no later than 30-days after the Commission has filed its decision.

FAMILY SUBDIVISION & MINOR ADMINISTRATIVE SUBDIVISION PROCESS

The following are the steps involved for an administrative approval of a family or minor subdivision. This includes boundary line adjustments and lot consolidations. Following these steps is a flow chart which

outlines this process.

1. Customer is greeted by FCS when entering the building.

2. Customer inquiries to how to create a family or minor subdivision?

3. FCS informs the customer that he/she needs to set up a preapplication meeting with a member of the planning department.

4. FCS takes down the contact information forwards it to the appropriate staff personnel.

5. A Planner calls the customer to set up a pre-application meeting.

6. During the Pre-application meeting the following points need to be covered:

   a) Check ZONING MAP to determine current zoning of subject property;
   b) Check the appropriate sections of the County's Zoning and Subdivision Ordinance;
   c) Discuss the process associated with this request;
   d) Obtain application packet.

7. Customer submits the application at the front counter.

8. FCS reviews the submission to ensure it is complete using the following checklist:

   a) Complete application (no blanks) with signature(s);
   b) Deed with ordinance language;
   c) copies of the plat with all signatures;
   d) Certification letter or septic construction permit.

9. FCS date stamps the application and forwards the application to the Planning Technician.

10. Planning Technician logs the applications onto the computer system and sets up the case file.

11. Planning Technician forwards application to Planner and Environmental Planner.

12. Planner reviews the minor subdivision application

   a) Zoning conformance;
   b) VDOT dedication;
   c) Ordinance language on deed and plat;
   d) Surveyor's Certification;
   e) Owner's Consent;
   f) Ingress/egress easement;
   g) Road maintenance agreement (if applicable);
   h) Site visit by planner if necessary.

13. Environmental Planner reviews E&S and Chesapeake Bay issues (if any) and forwards comments to the Planner.

14. If the application and plat are correct to 16.

15. If the application and/or plat is deficient Planner contacts surveyor with necessary corrections.

16. Surveyor revises plat and/or documents and resubmits for Planner to review.

17. Planner stamps and signs plat.

18. Planner forwards application to FCS.

19. FCS calls applicant to pick up application and approved plats.

20. Applicant records deed(s) and plat(s) with County Clerk's office within six months of approval.

See Appendices, Section A, Figure 8 flow chart which outlines the family and minor administrative subdivision process.

MAJOR SUBDIVISION PROCESS

A major subdivision is one which contains roads, sewers, public water and/or has three (3) or more lots. A third lot is created when two (2) lots created from a parent parcel
are created resulting in two (2) new lots plus the remaining portion of the parent tract. Since the parent tract is now smaller (than prior to this proposed division) it is determined to be a third (3rd) lot. Thus, such a division is classified as a major subdivision. All major subdivisions must be served by a new road constructed to state standards (paved). Private roads are not permitted.

The following are the steps involved in the subdivision process.

---

1. Customer is greeted by FCS when entering the building.

2. Customer inquiries to how to create a subdivision?

3. FCS informs the customer that he/she needs to set up a pre-application meeting with a member of the planning department.

4. FCS takes down the contact information forwards it to the appropriate staff personnel.

5. A Planner calls the customer to set up a pre-application meeting.

6. During the Pre-application meeting the following points need to be covered:

   a) Explain process;
   b) Check zoning map;
   c) Check the appropriate sections of the County's Zoning and Subdivision Ordinance(s);
   d) Obtain application packet.

7. Customer submits the application at the front counter.

8. FCS reviews the submission to ensure it is complete using the following checklist:

   a) Complete application (no blanks) with signature(s);
   b) 16 copies of the preliminary plat and construction plans;
   c) Certification letter or septic construction permit.

9. FCS date stamps the application and forwards the application to the Planning Technician.

10. Planning Technician logs the applications onto the computer system and sets up the case file.

11.Planning Technician forwards preliminary plat and application to Planner.

12. Planner reviews preliminary plat and application:

a) Zoning conformance;
b) VDOT dedication along frontage;
c) All roads constructed to VDOT standards;
d) Construction plan review (grading, E&S, drainage, etc.).

13. Planning Technician prepares Technical Review Committee (TRC) packet and agenda and then forwards application(s} and preliminary plat(s} to members of TRC.

14. The TRC is composed of County and non-County agencies. The County departments are as follows:

a. Planning & Zoning
b. Building
c. Public Works
d. Economic Development
e. Parks & Recreation
f. School Board
g. Sheriff's Office
h. Fire & Rescue
i. Environmental (Chesapeake Bay, E&S, VSMP and Drainage).

The non-County agencies are as follows:

j. Virginia Department of Transportation (VDOT)
k. Virginia Department of Health (VDH)
l. Fort A.P. Hill
m. Rappahannock Electric Cooperative (REC)

15. TRC comments shall be forwarded to the applicant or applicant's representative within 7 business days after the meeting.
16. Customer revises documents per TRC comments and resubmits for review.
17. Upon submission of a correct, revised document(s) the Planner prepares a cover memo for the Planning Commission (PC).
18. Planner forwards case file and memo (via e-mail) to Planning Technician for the PC packet.
19. Planning Technician sends out PC packet.
20. Planning Commission reviews application and plat.
21. If approved by PC go to Step 24.
22. If approved with modifications:
    a) Planner is authorized to ensure modifications are made to plat and to sign plat;
    b) Planner send letter to customer outlining modifications needed;
    c) Customer revises documents per modification letter;
    d) Planner reviews modifications to application preliminary plat;
    e) If correct go to Step 24.

23. If denied, customer may appeal to the Board of Supervisors.
24. Customer proceeds to develop final plat.
25. Customer submits an application for final plat approval to FCS.
26. FCS reviews application for final plat approval:

a) Complete application;
b) 6 copies official plat (3 mylar and 3 paper copies)
c) Outside agencies' signatures (VDOT, VDH, etc.) on all final plats prior to submission;
d) Executed deeds of dedication, Developers Agreement, & HOA documents).

27. If all above documents present and signed, application is date stamped and forwarded to the Planning Technician.
28. Planning Technician logs the applications into the computer system and set us the case file.
29. Planning Technician forwards deeds of dedication et al to County Attorney's Office for review & approval.
30. If deeds and other documents are correct the go to step 36.
31. If deeds and other documents are incorrect County Attorney advises Planner as to proper corrections that need to be made.
32. Planner reviews final plat.
33. If incorrect the Planner contacts customer and forwards all corrections that need to be made (deeds, plats, etc.).
34. Customer resubmits revised documents (plats. deeds, etc) to front counter for review.
35. Revisions forwarded to Planner for review.
36. If incorrect go back to step 33.
37. If correct, Planner prepares memo for PC.
38. Planner forwards memo and final plats to Planning Technician for PC Packet.
39. Planning Technician sends out PC Packet.
40. If approved go to step 45.
41. If denied, customer may appeal to Circuit Court of Caroline County.
42. Planner sends approval letter to customer.
43. Approved plats forwards to FCS.
44. Customer picks up approved plats.
45. Customer records all deeds, final plats and other documents in the Office of the Clerk of the Circuit Court
46. Customer post surety bond and construction begins.

See Appendices, Section A, Figure 9 flow chart which describes the major subdivision development process.

PART 5: SITE PLAN APPROVAL PROCESS

INTRODUCTION

A site plan is required for all proposed land uses except:

- Single-family detached dwellings on parcels which are greater than 3 acres in size;
- Agricultural operations;
- Filling and grading where no impervious structures or improvements will be installed, no clearing performed, and the disturbed area is less than 2,500 square feet.

Caroline County has 2 types of site plan applications. The first one is a minor site plan and the second is a major site plan. The following criterion outlines the requirements to be eligible for a minor site plan:

- An existing building is on the site;
- No increase in the amount of impervious area;
- No increase in the required parking for the proposed use.

All other developments must file for major site plan approval. An approved site plan is required before

issuance of a zoning, building or land disturbing permit(s).

AUTHORITY TO REQUIRE SITE PLAN APPROVAL

The power to regulate the development of land stems from the inherent power vested by the State General Assembly in the Caroline County BOS. The site plan regulations for Caroline County have been enacted by the BOS in the form of a zoning ordinance. The most recent zoning ordinance was adopted February 23, 1973, and revised through December 14, 2004. The general purpose of zoning ordinance is to control and order the growth and development of Caroline County in accordance with the County Ordinances', Policies' and the Comprehensive Plan. The Comprehensive Plan is required by State law to be updated every five years. This is further addressed in the *Code of Virginia, Volume 3A, Title 15.2, Chapter* 22, *Article* 6 (aka 15.2-2246) 1950, as amended.

WHO IS THE SITE PLAN COORDINATOR AND WHAT DOES HE/SHE DO?

The Site Plan Coordinator, a member of the Caroline County governmental staff, is the individual authorized to administer, and enforce the provisions of the site plan requirements in the zoning ordinance on behalf of the BOS. The Site Plan Coordinator has the authority and power to order, in writing, the remedy of any condition found in violation of the Ordinance and to bring legal action to ensure compliance with its provisions should that become necessary. The Site Plan Coordinator's authority is strictly defined. The Site Plan Coordinator, by law, does not have discretionary powers and therefore, can only approve a request that clearly conforms to the requirements of the site plan provisions in the Zoning Ordinance. This provision of the Ordinance is deliberate in that it is designed to prevent favoritism, unequal treatment to landowners in similar circumstances, and other abuses, which stem from the unfettered exercise of administrative powers.

WHERE DO I FILE MY APPLICATION?

File your completed application with the FCS of the County's Department of Planning & Community Development, located on 233 West Broaddus Avenue, Bowling Green, VA 22427. Submission dates are in the appendix of this manual.

IS THERE A FILING FEE?

Yes. There is a non-refundable filing fee. Consult with a member of the department for the appropriate fee(s).

WHAT IS AND WHEN IS A LIMITED POWER OF ATTORNEY REQUIRED?

A Limited Power of Attorney (LPOA) is a document that authorizes an individual to act on the behalf of another person. A LPOA is needed to accompany your application in the following circumstances:

1. If site plan is being submitted for a property which you have not yet purchased and is subject to County approval prior to executing the sales contract, then current owner (seller) should give you the right to apply for a site plan approval in the name of the seller. In this situation you will need a LPOA from the property owner stating that he has authorized you to act on his behalf as it relates to the application.

2. If you have decided to have an agent represent you, then a LPOA will then be needed which authorizes your agent to represent your interests as it relates to the site plan application.

WHAT HAPPENS NEXT?

The staff will review the application to verify its completeness. Once the application is accepted, the review process shall begin. A case planner will conduct a review of the application and plan to ensure all items on the

checklist have been addressed and are correct.

How Long Do I Have to Wait for a Decision?

Typically a minor site plan can be approved within approximately 45 days after submission. A major site plan normally requires a couple of revisions and as a result the typical time is approximately 90 to 120 days.

The following steps are involved for a minor and major site plan process.

SITE PLAN PROCESS STEPS

1. Customer is greeted by FCS when entering the building.

2. Customer inquires how to submit a site plan?

3. FCS informs the customer that he/she needs to set up a preapplication meeting with a member of the DPCD.

4. FCS takes down the contact information forwards it to the appropriate staff personnel.

5. A Planner calls the customer to set up a pre-application meeting.

6. During the Pre-application meeting the following points need to be covered:

    a) Explain process;
    b) Check parcel/zoning file;
    c) Check zoning map;
    d) Check the appropriate sections of the County's Zoning Ordinance;
    e) Obtain application packet.

7. Customer submits the application at the front counter.
8. FCS reviews the submission to ensure it is complete using the following checklist:

    a) Complete application (no blanks) with signature(s);
    b) 16 copies of the site and/or construction plans.

9. FCS date stamps the application and forwards the application to the Planning Technician.

10. Planning Technician logs the applications onto the computer system and sets up the case file.

11. Planning Technician forwards the site plan and application to Planner.

12. Planner reviews the site plan and application using the following checklist;

    a) Zoning conformance;
    b) VDOT dedication along frontage;
    c) All roads constructed to VDOT standards;
    d) Landscaping;
    e) Signage (if any);

13. Planning Technician prepares Technical Review Committee (TRC) packet and agenda and then forwards application(s) and the site plan(s) to members of TRC.

14. Site plan file is then returned to Planner.

15. The TRC is composed of County and non-County agencies. The County departments are as follows:
    a) Planning & Zoning
    b) Building
    c) Public Works
    d) Public Utilities
    e) Environmental
    f) Economic Development
    g) Parks & Recreation
    h) School Board
    i) Sheriff's Office
    j) Fire & Rescue

    The non-County agencies are as follows:

    k) Va. Dept. of Transportation (VDOT)
    l) Va. Dept. of Health (VDH)
    m) Fort A.P. Hill
    n) Rappahannock Electric Cooperative (REC)

    NOTE: Minor site plans are primarily reviewed by DPCD, VDOT and VDH (if private well/septic).

16. TRC comments shall be forwarded to the applicant or applicant's representative within 10 business days after the meeting.

17. Customer revises documents per TRC comments and resubmits for review.

18. Planner reviews revised the site plan

19. If revised site plan does not meet County requirements -go to Step 17.

20. The Planner stamp/date the site plan if all requirements have been met.

21 . Planner prepares an approval memo to be sent to the Customer and place a copy in the site plan file.

See Appendices, Section A, Figure 10 for the site plan review process for planned unit development which applies to commercial and industrial development activities.

PART 6. ZONING VIOLATION PROCESS

INTRODUCTION

A zoning violation is when a property owner allows his property to accumulate a significant amount of trash, junk, debris, or the property is being used for an activity which is not a permitted use under the zoning ordinance of the County.

HOW ARE VIOLATIONS REPORTED?

Typically a citizen calls the County with a complaint about a property. When this occurs the County takes down all information and the contact information for the complaint. However, the citizen may choose not to disclose his/her name and if so the complaint is registered as an anonymous complaint. In fact County staff is prohibited by law from disclosing who filed a zoning compliant.

WHO INVESTIGATES THE ALLEGED VIOLATION?

The Zoning Administrator or his designee will investigate the complaint within 10 business days of its registration.

HOW DOES THE COUNTY RESPOND TO VIOLATIONS?

After the first site visit if the complaint is substantiated then a brochure is left on the premises and/or a letter is sent to the property owner. This document alerts the property owner that the particular activity is a violation of the County's ordinance and requests that they abate the violation within 30 days.

After 30 days has passed the property is re-inspected and if the violation has been corrected the case is closed. Voluntary compliance is the County's goal. If however, the violation still persists then a final notice is sent advising the property owner that the violation must be cleaned up within 15 days. After 15 days has passed the property is re-inspected and if the violation has been corrected the case is closed. If the violation still persists then the County staff will prepare all documents associated with the case and send them to the County Attorney to initiate legal proceedings in order to address the issue.

CIRCUIT COURT PROCEEDINGS

The appropriate evidence and testimony is presented in the Circuit Court. The Court makes a ruling. If the ruling is in favor of the County then the judge probably will offer the defendant an opportunity to clean up the property typically 14 to 21 days. If after this period, the property is not cleaned up the County will file a Show Cause. At this point, the defendant is in violation of the Court Order and may face severe penalties including jail time. It is also the policy of Caroline County that County attorney fees for all show cause actions are collected from the defendant.

APPENDICES:

A. APPLICATION AND REVIEW PROCESS FLOWCHARTS

Figure 1. Single-Family Residential Building Permit Process

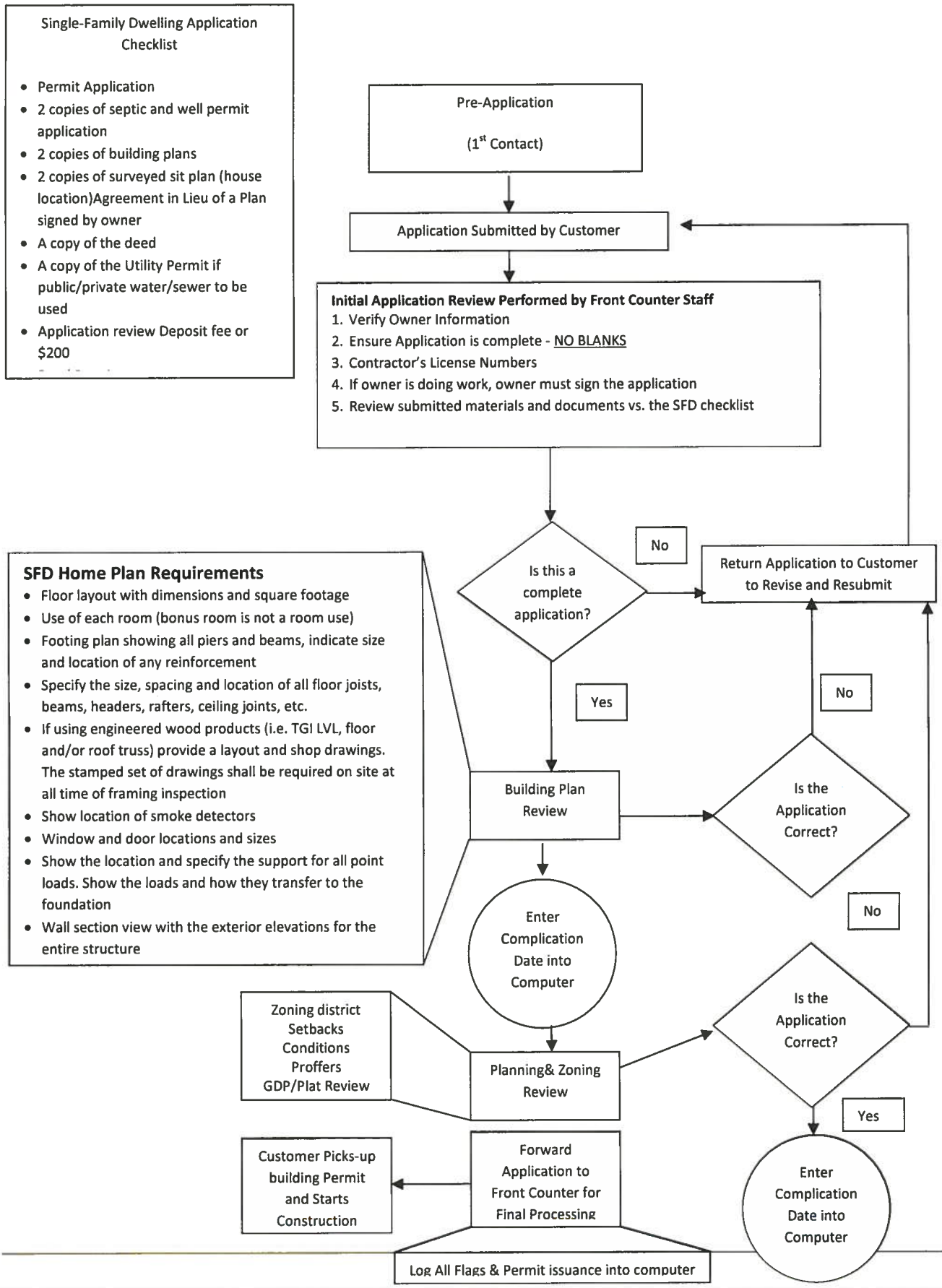


Figure 2. Manufactured Home Building Permit Process.

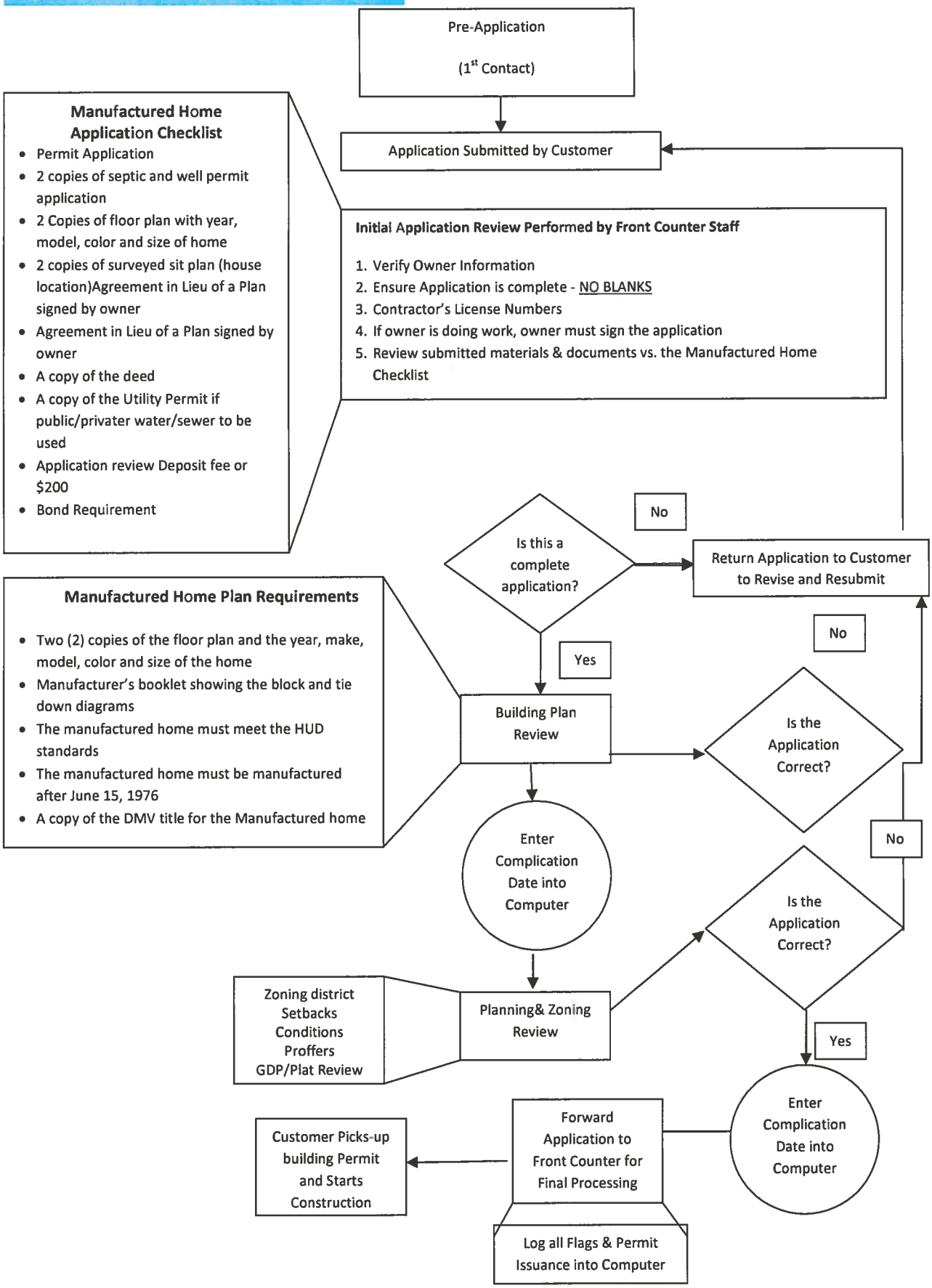


Figure 3. Building Inspection Scheduling Process

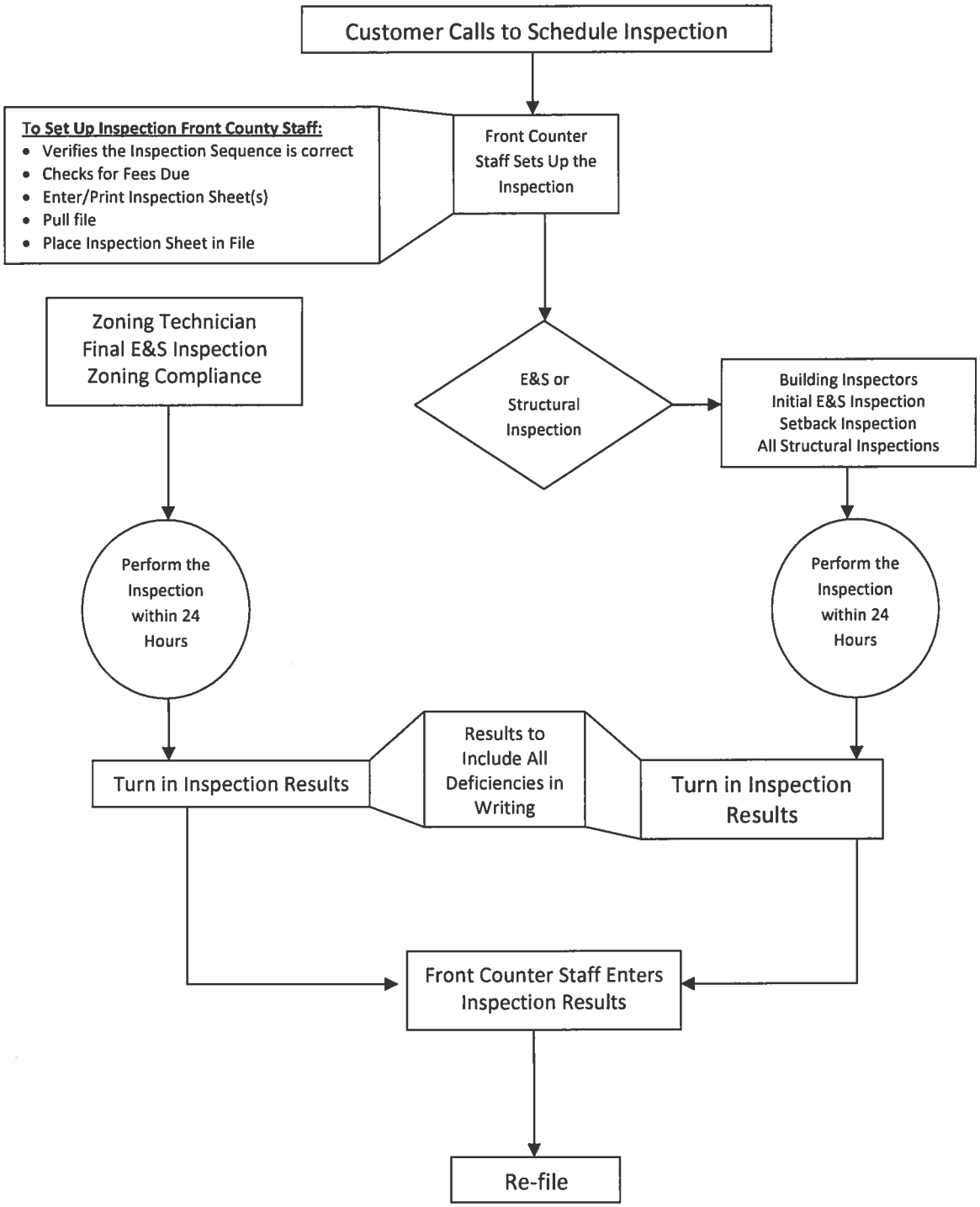


Figure 4. Sequence of Inspections: Residential Construction

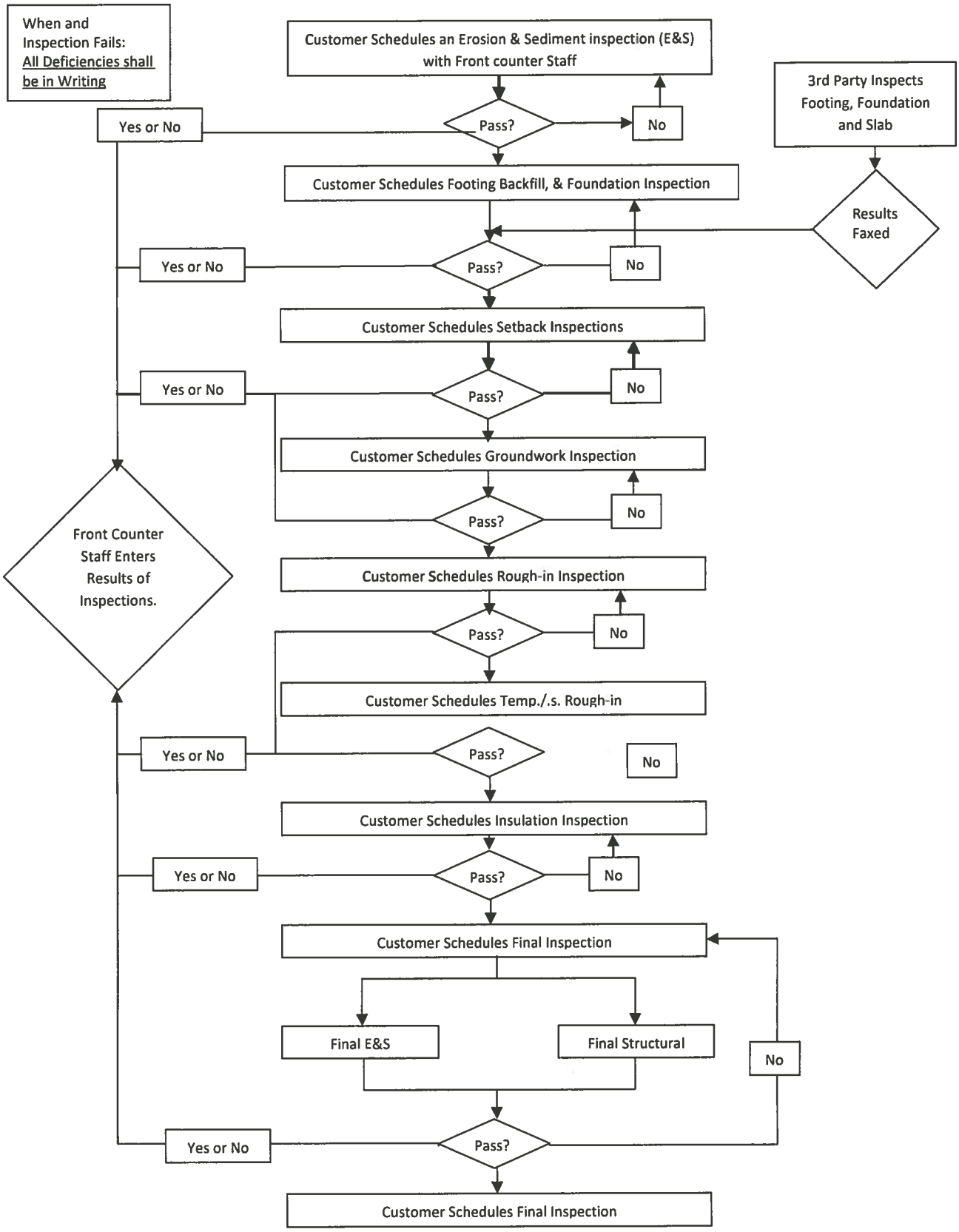


Figure 5. 911 Address Assignment Process

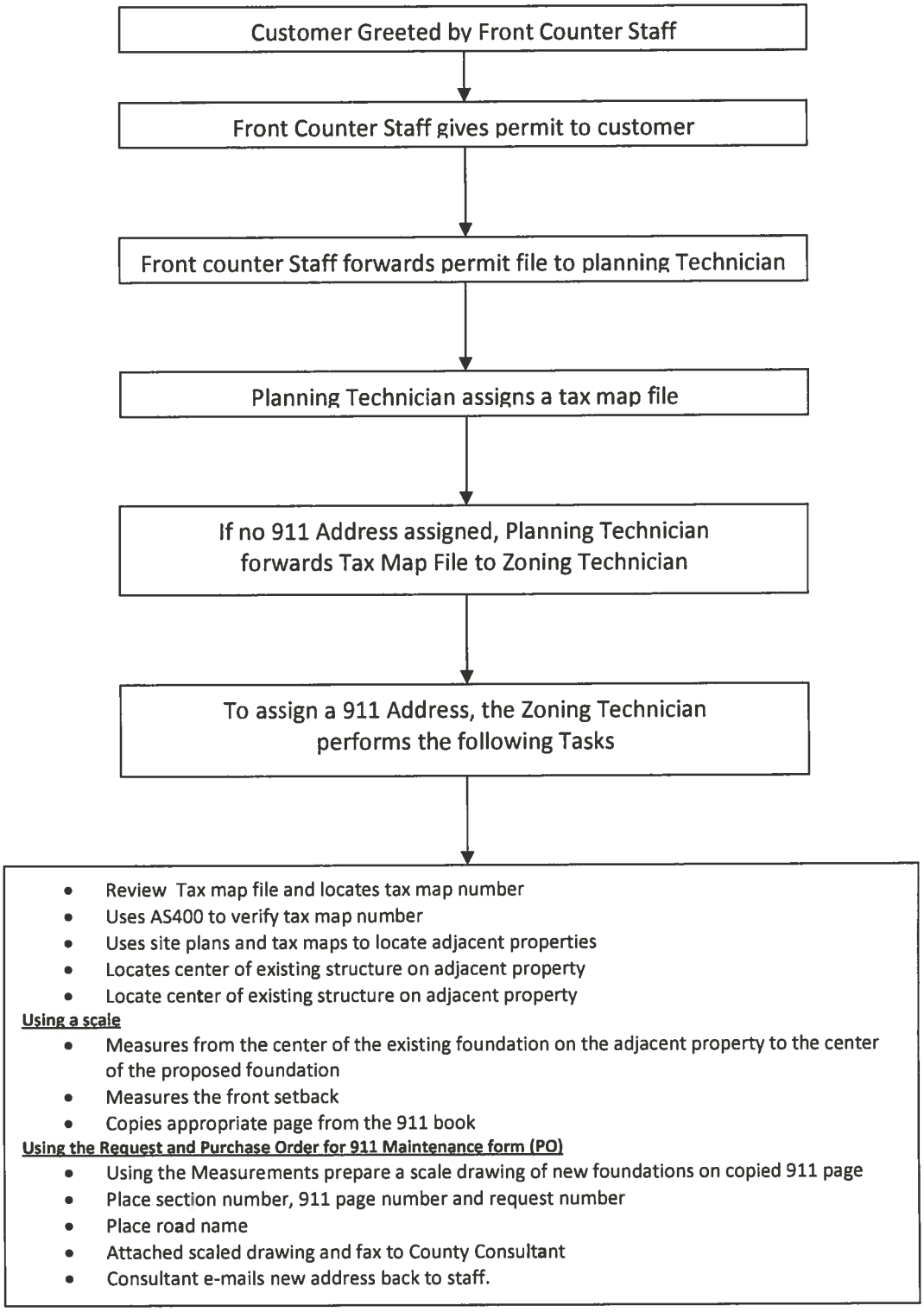


Figure 6: The Zoning Process

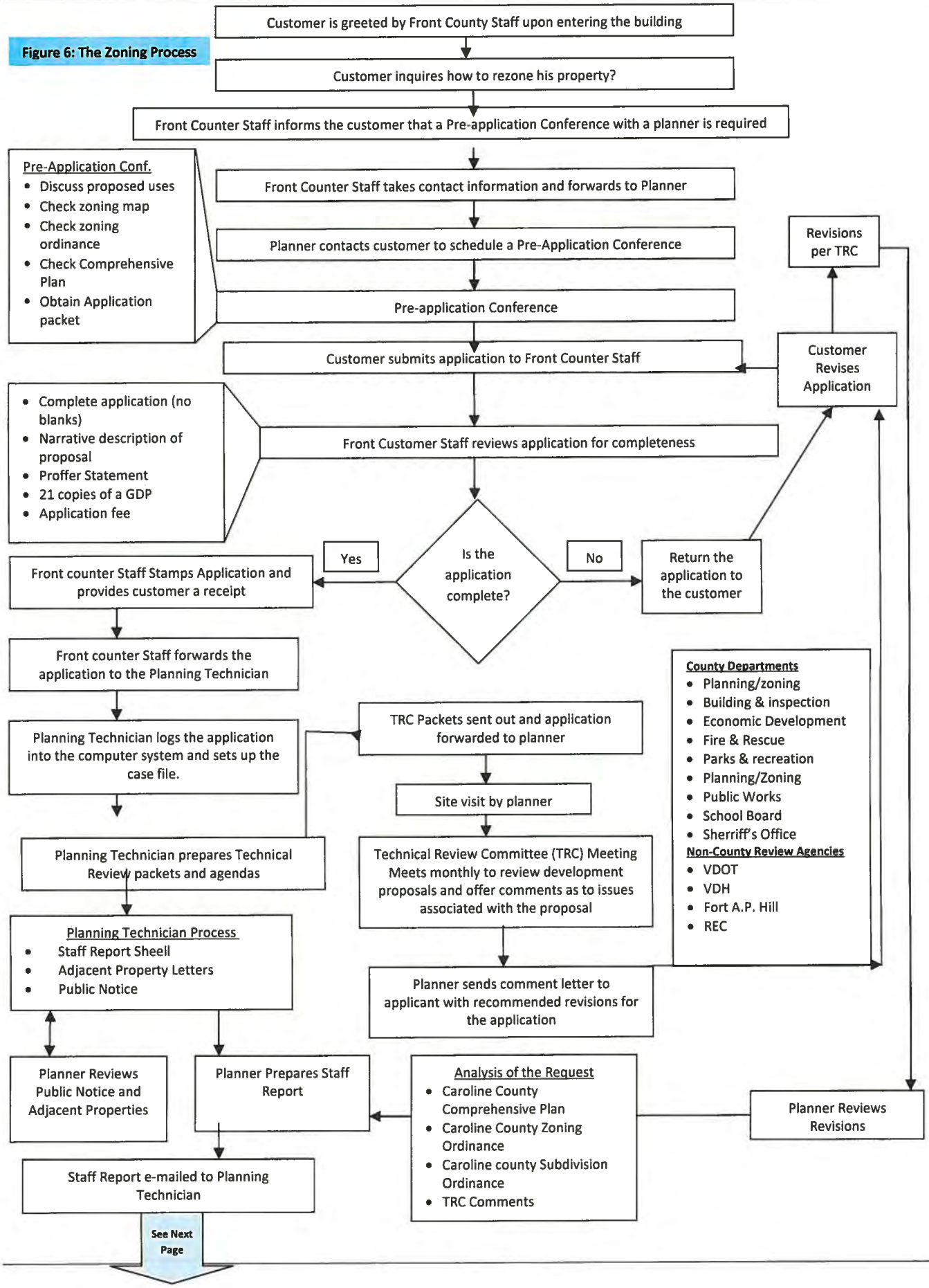


Figure 6: The Zoning Process (Continued)

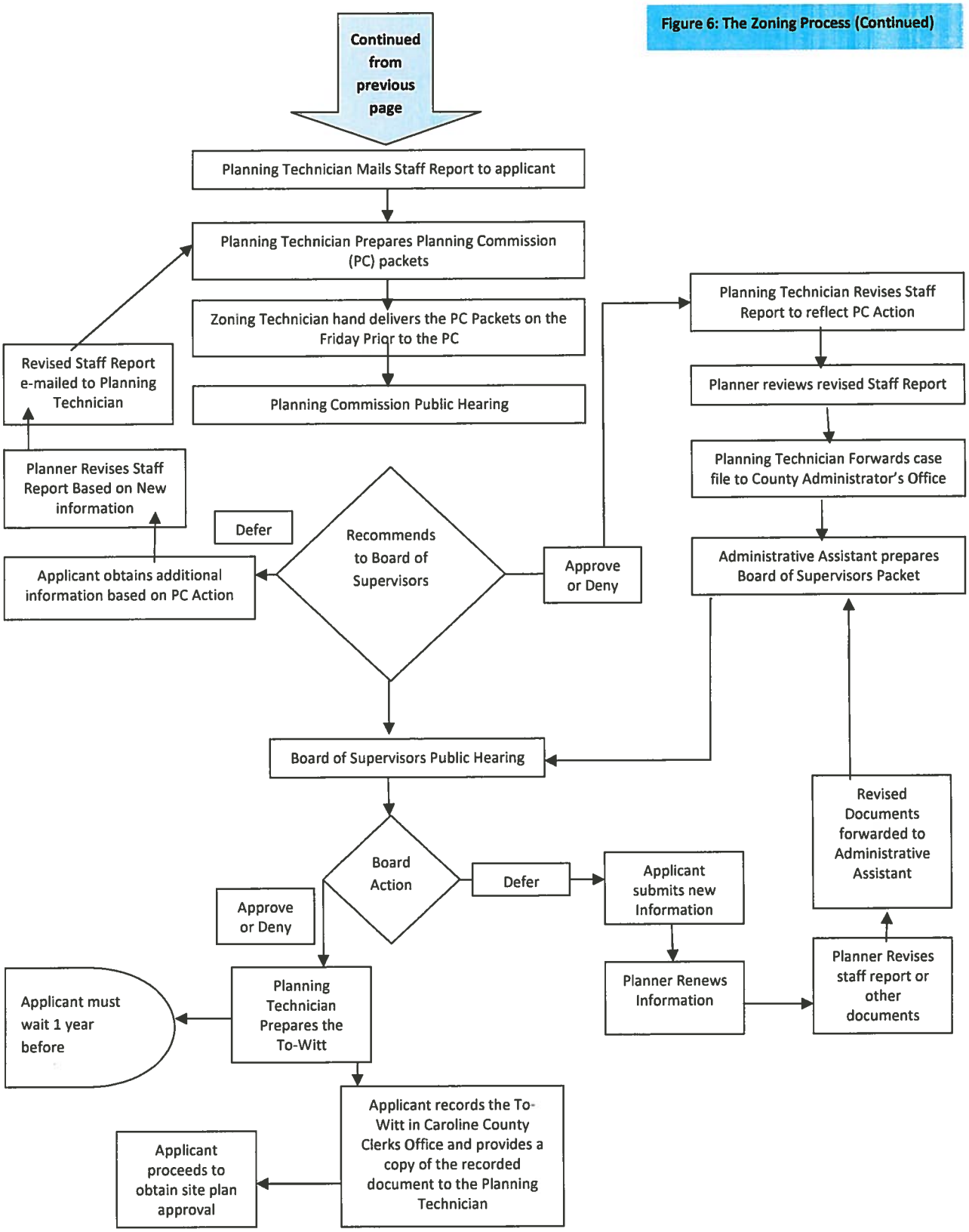


Figure 7: The BZA Variance/Appeal Process

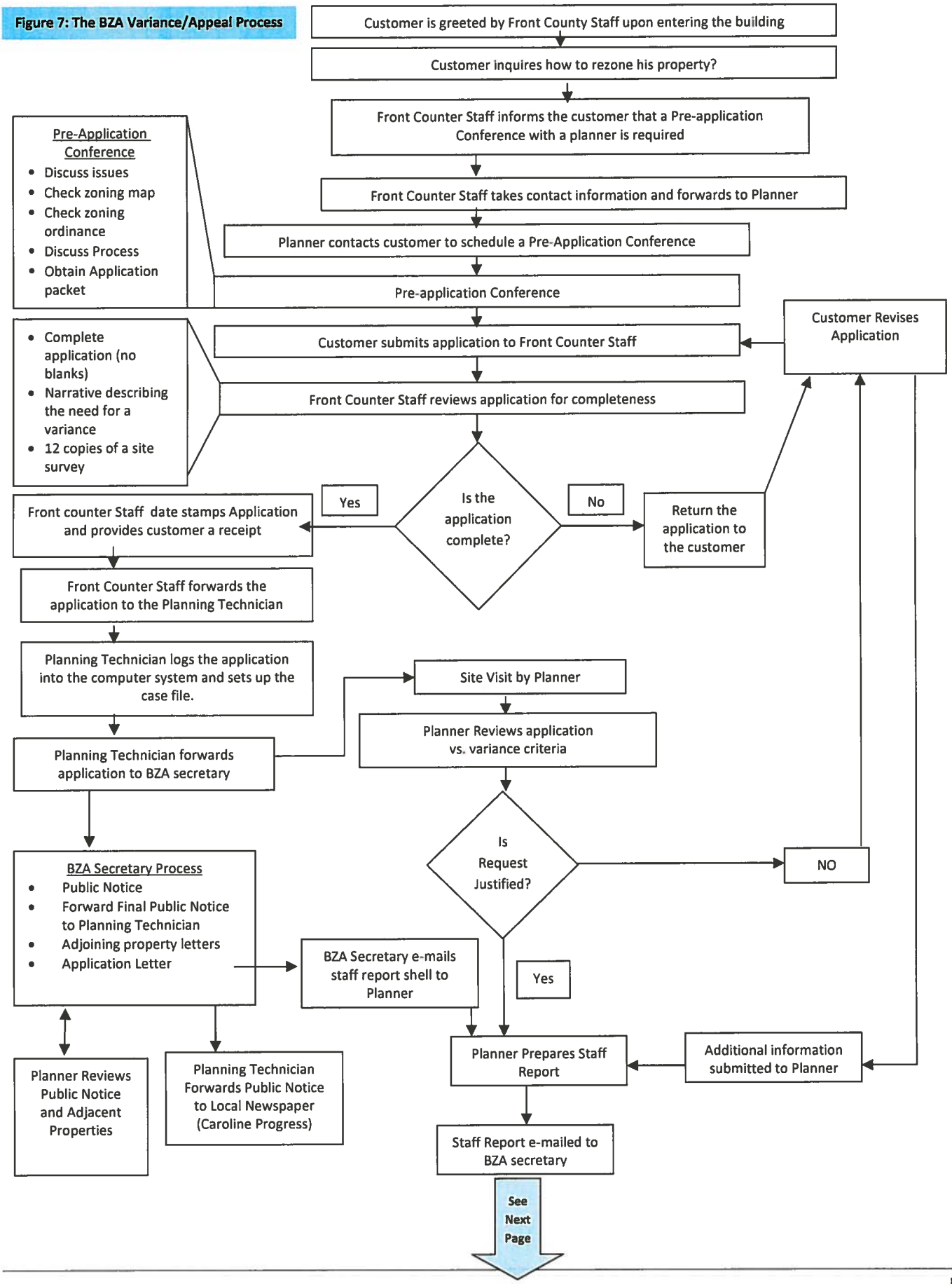


Figure 7: The BZA Variance/Appeal Process (Continued)

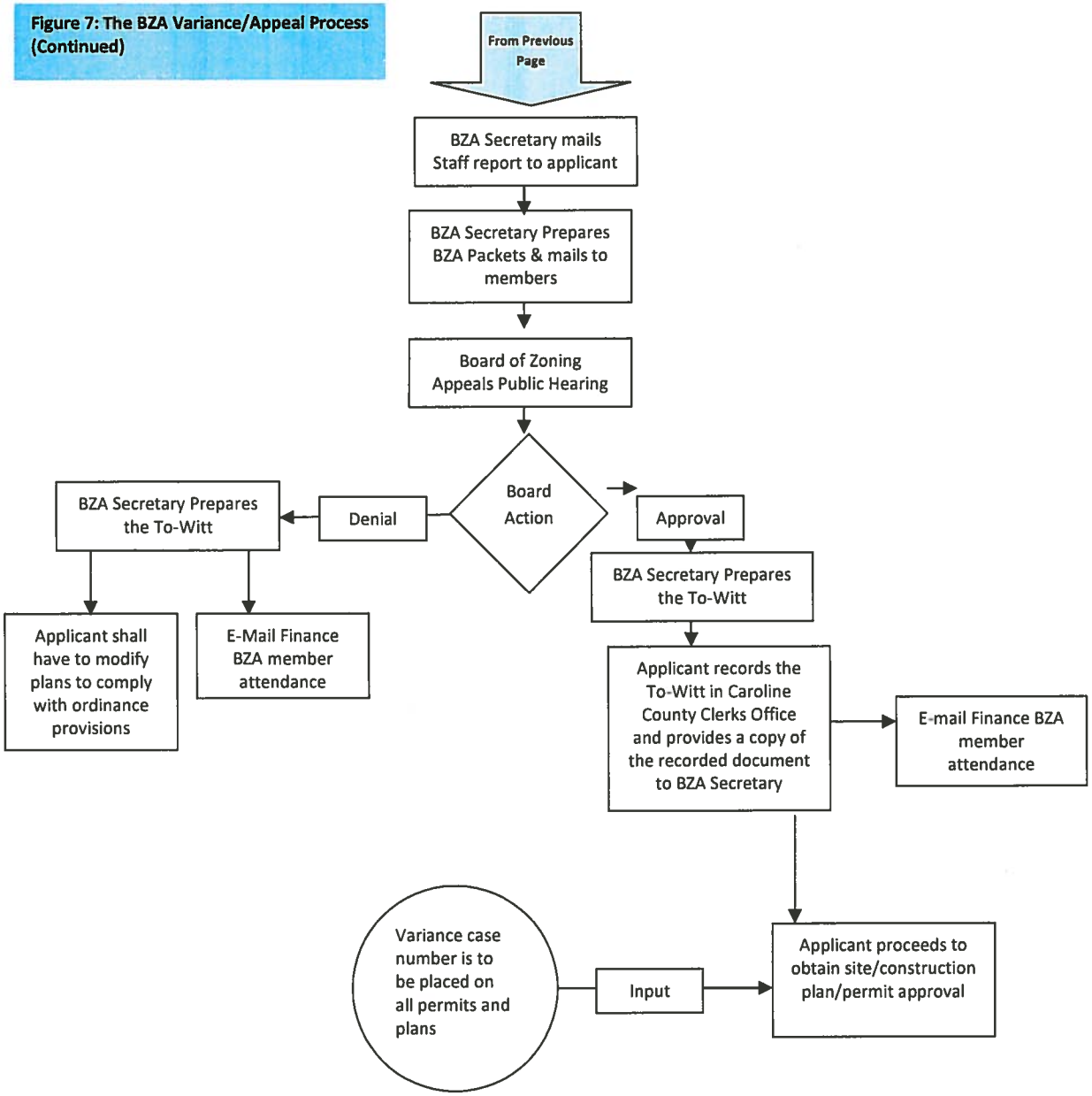


Figure 8: The Family & Minor Admin. Subdivision Process

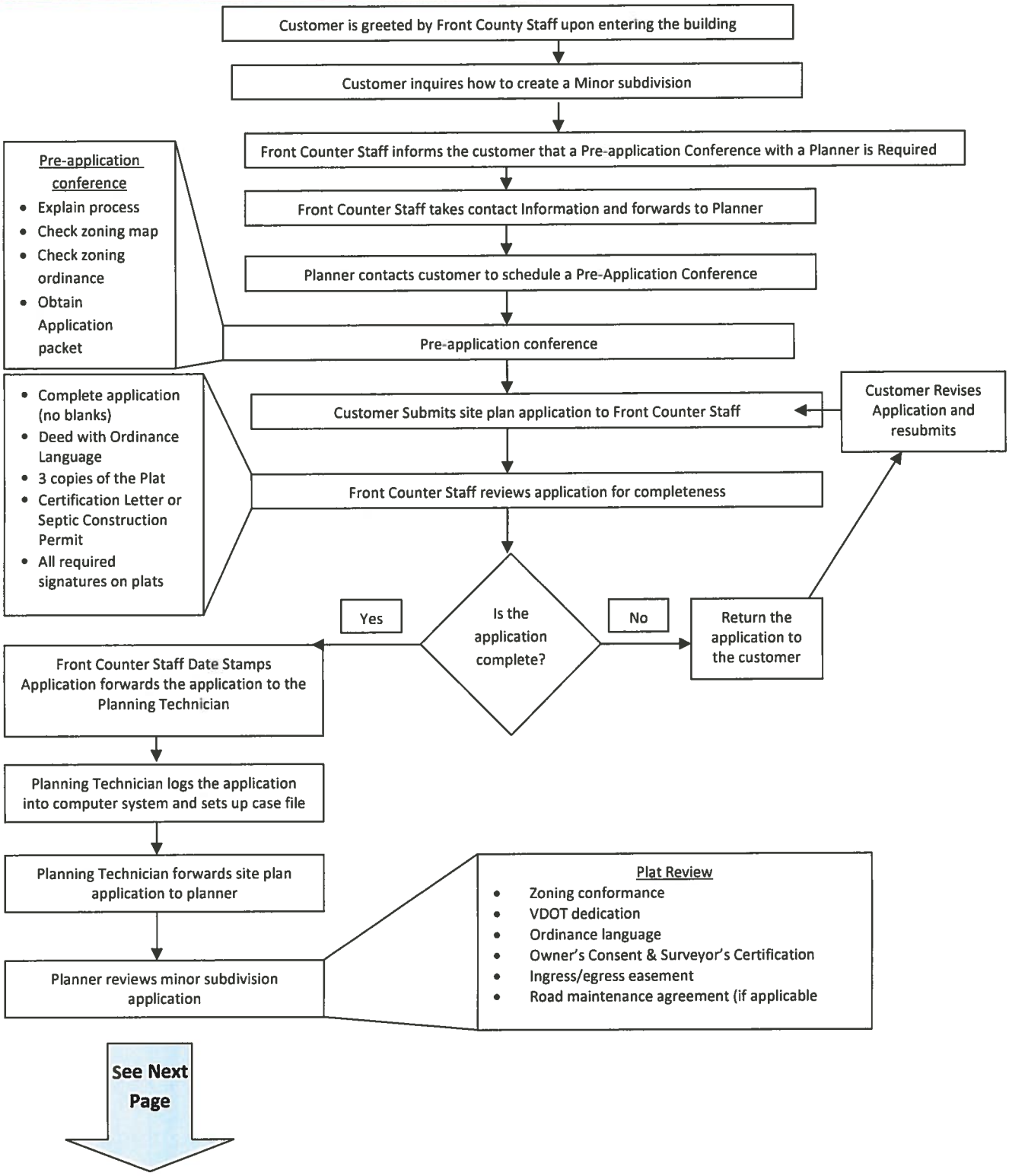


Figure 8: The Family & Minor Admin. Subdivision Process (Continued)

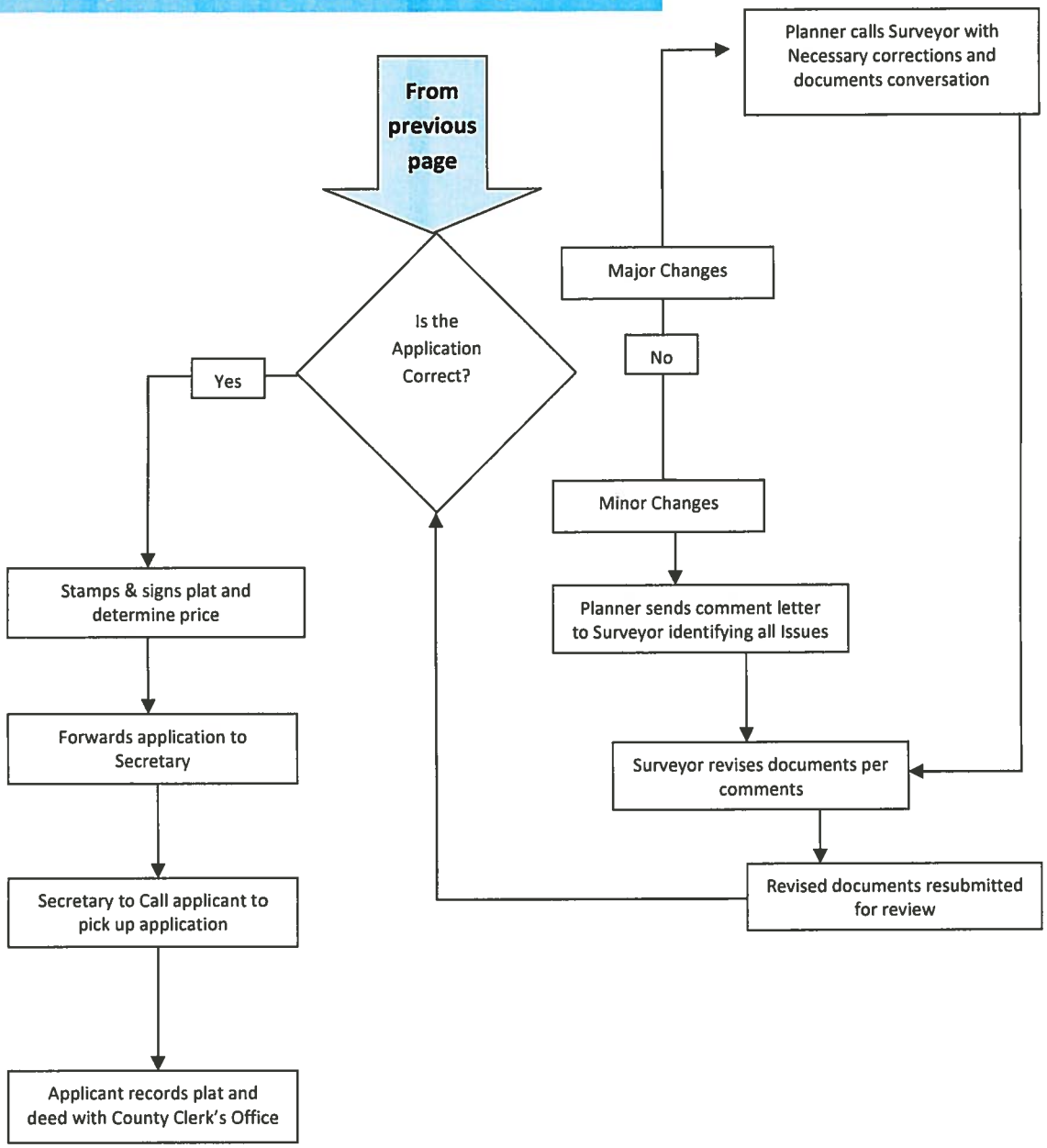


Figure 9. Major Subdivision Process

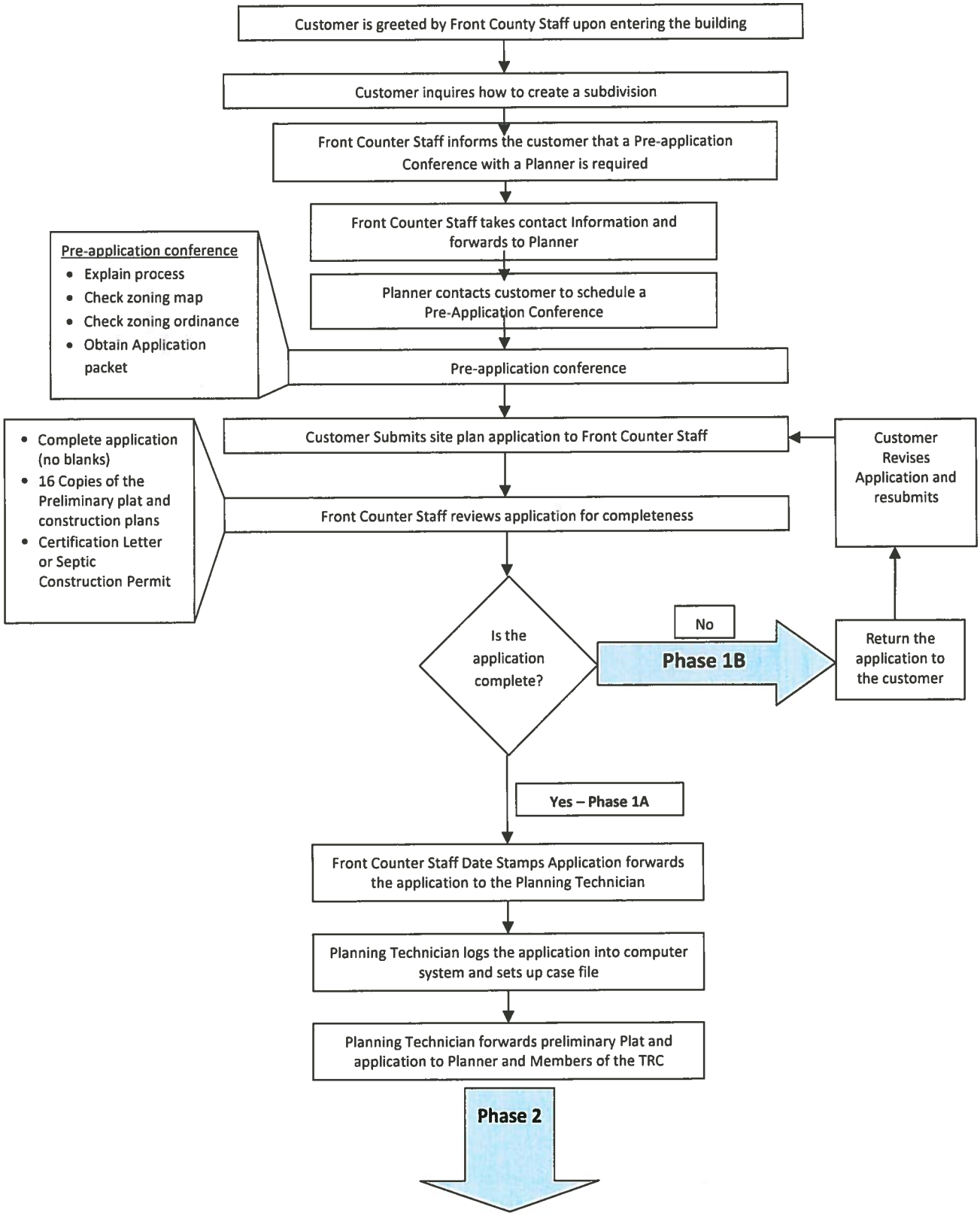


Figure 9. Major Subdivision Process (continued)

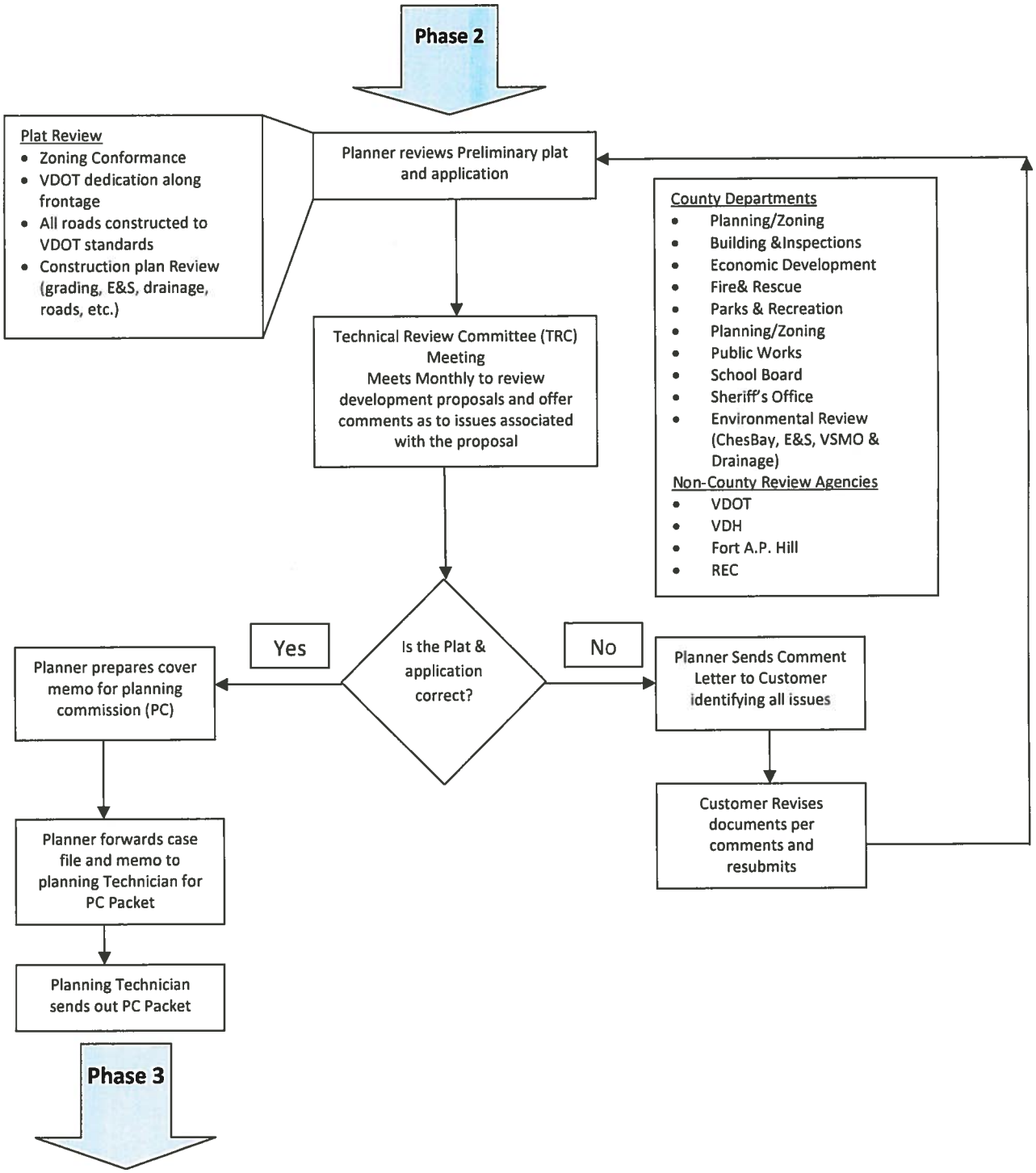


Figure 9. Major Subdivision Process (continued)

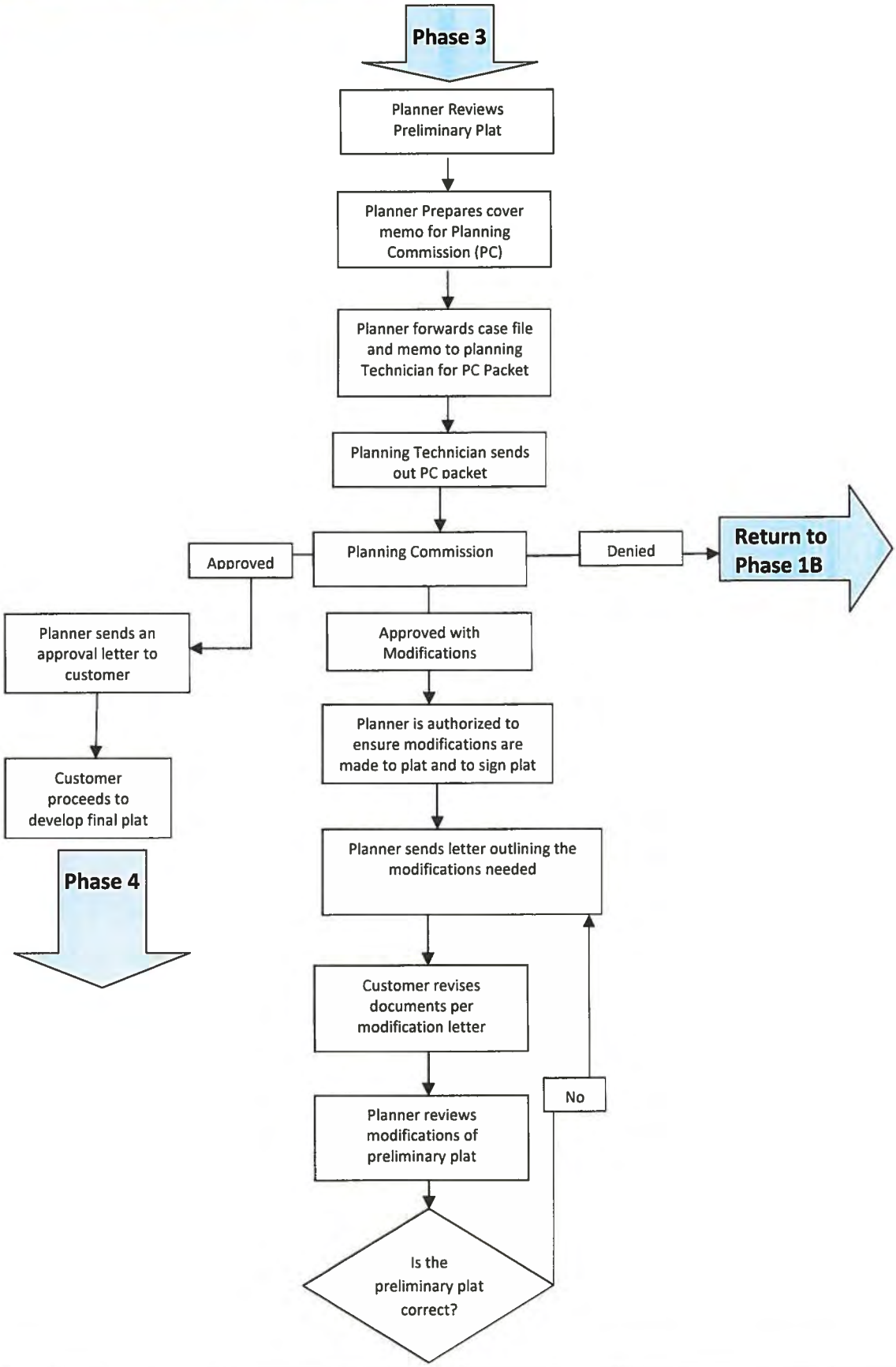


Figure 9. Major Subdivision Process (continued)

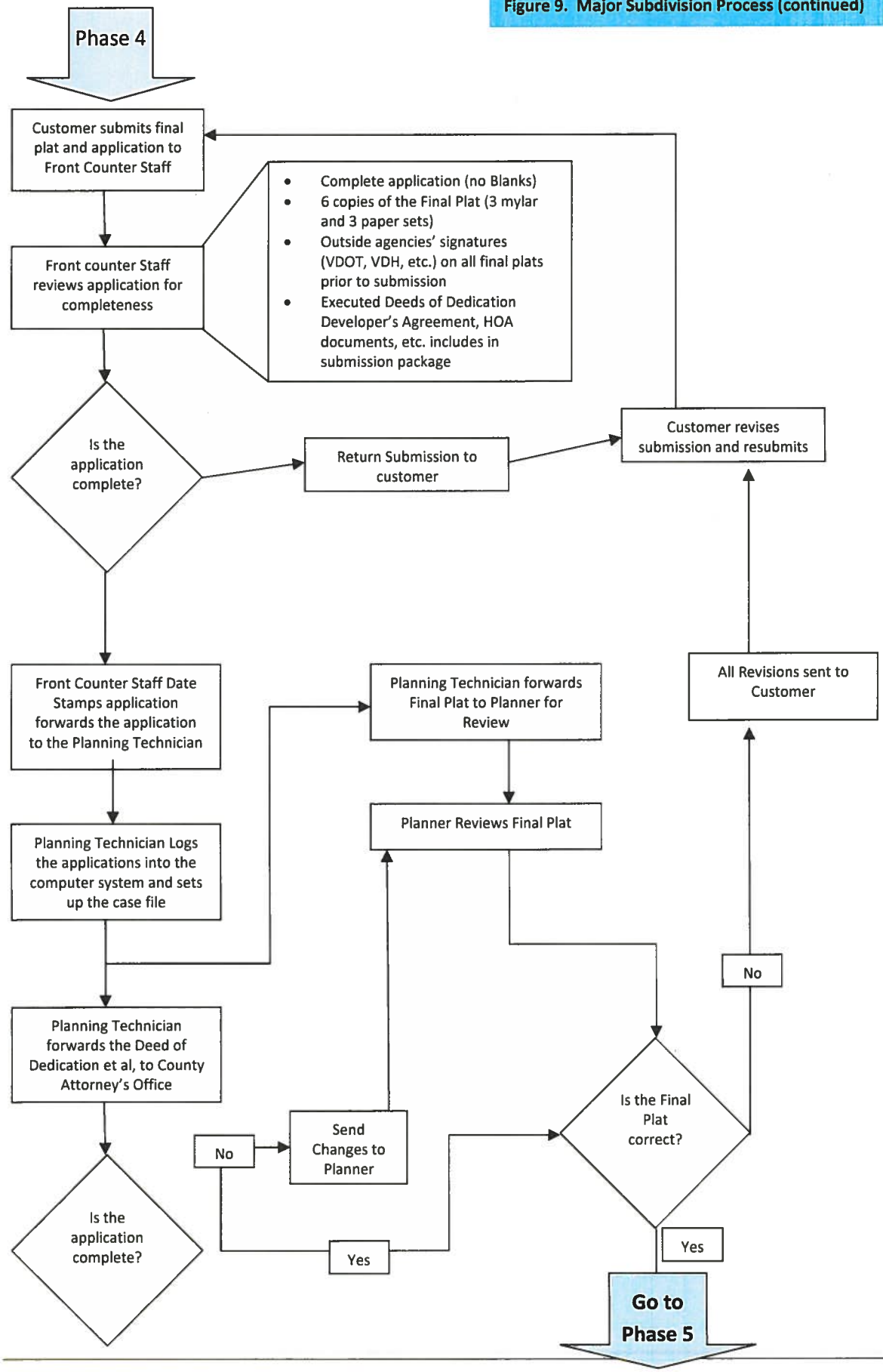


Figure 9. Major Subdivision Process (continued)

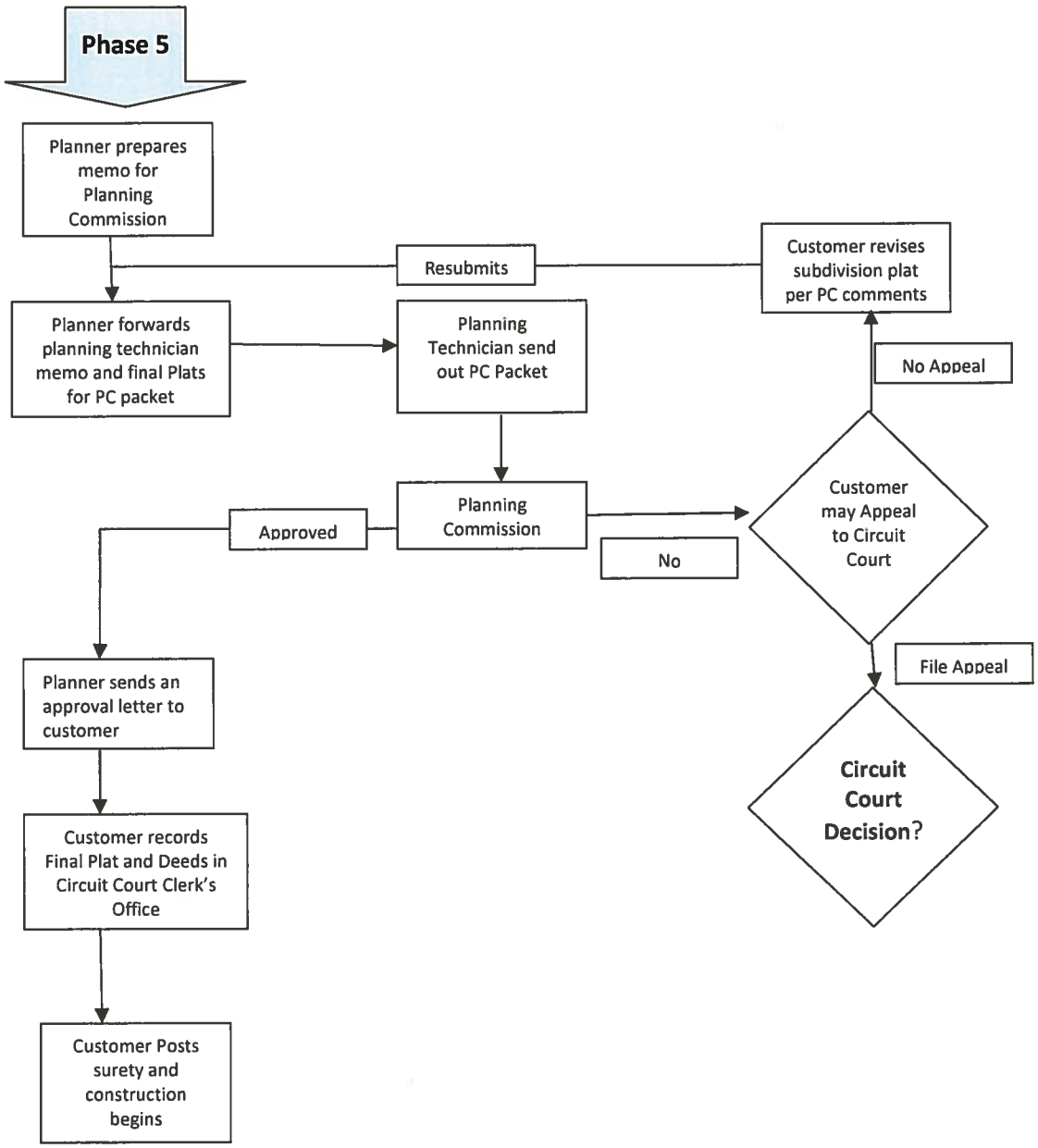
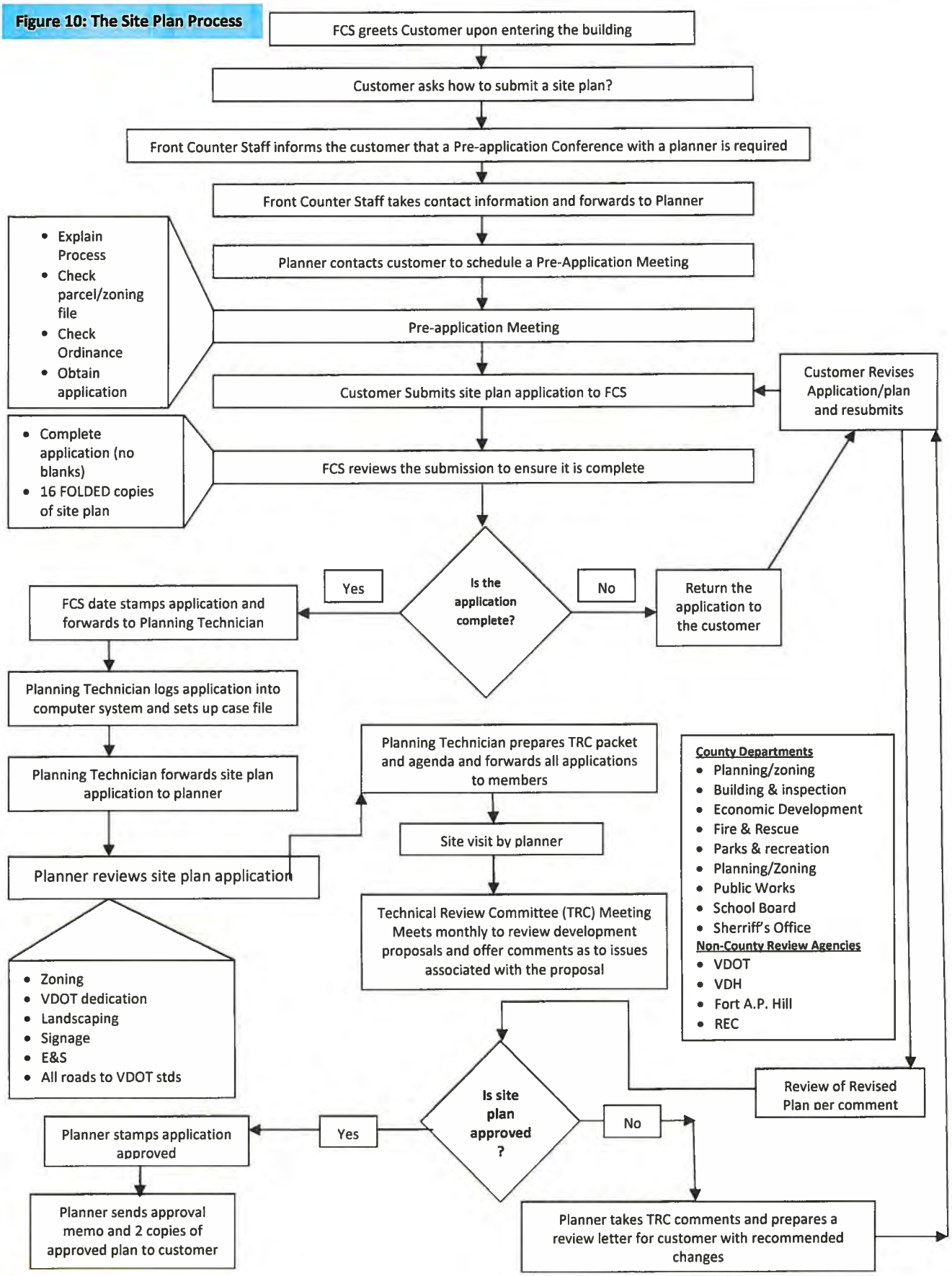


Figure 10: The Site Plan Process



B. DEVELOPMENT POLICIES OF THE CAROLINE CO. PLANNING COMMISSION
(Effective 11-3-2008)

The policies contained herein have been established by the Caroline County Planning Commission as guidelines for new development and procedures. Whenever appropriate these guidelines shall be incorporated as conditions in association with permits or should be included in the proffers associated with rezoning applications. These policies reflect the goals and objectives found in the current Caroline County Comprehensive Plan and are consistent in supporting the existing current land development regulations (zoning, subdivision, and erosion and sediment control ordinances) of Caroline County.

1. Early Land Disturbance (ELD) Permit Requirements:

(a) The full site plan must have gone through at least one (1) review by the Technical Review Committee (TRC). Generally, the site plan must receive favorable comments in order to support the issuance of an ELD permit.

(b) The ELD permit must be supported by erosion and sediment control plan/land disturbance plan package, including a storm water management (SWM) concept plan, Chesapeake Bay Preservation Area (CBPA) requirements, and payment of all applicable permit fees. This plan must clearly show only the land disturbing activities allowed under the ELD permit.

(c) A surety shall be posted with the County for the cost of all erosion and sediment controls, including stabilization of the entire site (in case the site plan is not approved).

(d) If applicable, an executed and recorded storm water/BMP agreement must be provided.

(e) If the final site plan is approved and construction of that plan is not commenced within twelve (12) months of issuance, a new permit application and appropriate fee(s) are required.

(f) Full site plan shall be approved prior to making site improvements, such as major grading, utility or drainage structures, roadways, etc., if not shown on the approved erosion and sediment control plan/ELD permit. No building permits will be issued until the site plan is approved.

(g) The Director of Planning may modify these requirements based upon a written request by the applicant.

2. Submission of Applications & Revisions:

(a) In cases where a rezoning or use permit is associated with a highly intensive use such as but not limited to **a** planned development, commercial or industrial project of a significant size/scope and located within the HCOD, the Planning Commission may hold a work session to preliminary review the proposal. No approval shall be granted as part of this preliminary review.

(b) All revised proffers and general development plans must be submitted 15-days prior to advertised public hearing date. Failure to submit such items shall result in the item being removed from the agenda.

(c) Nothing above prevents an applicant from making any proffer or adjustments to proffers on the night of the public hearing after its conclusion upon a request by the Planning Commission.

(d) Incomplete application(s) should not be submitted to, reviewed by or approved by the Planning Commission.

3. Text Amendments:

(a) Any text amendments required due to an applicant's request for a use permit shall have to be acted upon by the Board of Supervisors prior to the applicant's request for a use permit being acted upon by the Planning Commission.

4. Architectural Characteristics & Colors:

(a) The development elements for non-residential structures should be consistent with neo-traditional planning which refers to the notion that the "new urbanism" actually looks to "old" urbanism for its inspiration, to accommodate pedestrians, mass transit and community oriented features.

(b) Architectural styles may vary, however they should be consistent with the commonly accepted Colonial, Federal, Greek Revival, & Victorian proportions, detailing and scale as enumerated in "A History of Architecture" by Banister Fletcher or similar Architectural guidelines.

(c) The exterior colors of any building under a rezoning or use permit are preferred to be a combination of either Earth Tones or Historical colors as described by a nationally recognized paint and coating manufacturer such as Benjamin Moore, Duron and similar paint manufacturers. No exterior brick walls should be painted.

(d) The Planning Commission may request architectural drawings of the exterior elevations of buildings and may request modifications to such drawings as it relates to building mass, scale, and roof style/height.

(e) Exterior lights should be consistent with the architectural style of the proposed development.

(f) Mini-warehouse developments need to be designed such that the interior structures are screened from view by the rear walls of the storage units. The rear wall(s) shall be brick and/or architectural block with architectural elements thereon to reflect a harmonious appearance with the existing street frontage and overall community design.

(g) Tents and canopies for temporary uses should be minimized whenever possible and screened from public view.

5. Signage:

(a) Monument style signs are preferred to pole signs. Monument style signs should be affixed to a brick and block base.

(b) Signage within a development site should be unified and of the similar style and color.

6. Environmental:

(a) Low impact development (LID) methods should always be considered in development proposals to the extent practical.

(b) Storm water BMPs and other similar structures should be designed to mimic naturally occurring bodies of water. Retention basins (i.e., permanent pool or wet basins) should be used only where there

is a hydrologic system to support the use of such a system. Such structures should be designed to be an amenity or as a water feature within the development. Fountains and other landscape enhancements are encouraged.

(c) Landscape plans should consider aesthetics, visual screening, shade (to minimize thermal impacts), and pre-treatment of runoff, litter control and containment, and maintenance of the SWM facility. The use of native species is encouraged.

(d) For projects that have concentrated storm water discharge (i.e., discharge from storm sewers, channels, ditches, etc.), the preferred method of sediment control is to install a sediment basin or trap at the outfall location. This strategy is especially applicable for projects such as residential subdivisions and other projects that may have a prolonged construction period and require permanent storm water BMP.

(e) Water quality treatment measures should be located to achieve the anticipated water quality benefits. Priority should be given to treating runoff from land uses such as impervious surfaces (especially, parking areas), fertilized lawn areas, and other areas with potential water quality impacts. Litter control and containment functions should be considered for projects such as fast food facilities, large parking lots, or other high use areas.

(f) For final approval, two copies of plans shall be submitted on an 11" X 17" format and in digital form (PDF).

7. Sustainable Development Strategies:

(a) All new developments are encouraged to utilize Energy Star-compliant components and equipment to the maximum extent possible (i.e. HVAC, appliances, lights, and plumbing).

(b) All new development proposals should offer a variety of transportation modes (i.e. vehicular, pedestrian, cycling, public, etc.) to the public.

(c) New development proposals should consider proffering to join "FRED" (the area's regional public transportation system).

(d) All grass and lawn areas should be top soiled 4" - 6" and include required soil amendments as indicated by soil tests.

(e) All new landscaping projects should include low impact development (LID) (water quantity and quality) techniques, use drought-resistant plant species, and minimize grass lawns.

C. RECOMMENDED LOW IMPACT DEVELOPMENT/BEST MANAGEMENT PRACTICES FOR STORMWATER MANAGEMENT AND WATER QUALITY PROTECTION

1. Introduction

Section 6 (Environmental) and Section 7 (Sustainable Development) of the Development Policies of the Caroline County Planning Commission (Effective 11-3-2008), reference LID techniques and Stormwater BMPs that developers and landowners are encouraged to consider and apply when undertaking land development. In support of these recommended practices, the following provides further guidance to help existing property owners voluntarily implement these recommendations as retrofit actions to developed properties.

Ten Common LID Practices

Rain Gardens and Bio-retention

a) Rooftop Gardens
b) Sidewalk Storage
c) Vegetated Swales, Buffers, and Strips;
d) Tree Preservation
e) Roof Leader Disconnection
f) Rain Barrels and Cisterns
g) Permeable Pavers
h) Soil Amendments
i) Impervious Surface Reduction and Disconnection
j) Pollution Prevention and Good Housekeeping

What is Low Impact Development?[8]

LID is simple and effective. Instead of large investments in complex and costly engineering strategies for stormwater management, LID strategies integrate green space, native landscaping, natural hydrologic functions, and various other techniques to generate less runoff from developed land.
LID is different from conventional engineering. While most engineering plans pipes water to low spots as quickly as possible, LID uses micro-scale techniques to manage precipitation as close to where it hits the ground as possible. This involves strategic placement of linked lot-level controls that are "customized" to address specific pollutant load and stormwater timing, flow rate, and volume issues.

One of the primary goals of LID design is to reduce runoff volume by infiltrating rainfall water to groundwater, evaporating rain water back to the atmosphere after a storm, and finding beneficial uses for water rather than exporting it as a waste product down storm sewers. The result is a landscape functionally equivalent to predevelopment hydrologic conditions, which means less surface runoff and less pollution damage to lakes, streams, and coastal waters.

Seven Benefits of Low Impact Development[9]

Effective. Research has demonstrated LID to be a simple, practical, and universally applicable approach for treating urban runoff. By reproducing predevelopment hydrology, LID effectively reduces runoff and pollutant loads. Researchers have shown the practices to be successful at removing common urban pollutants including nutrients, metals, and sediment. Furthermore, since many LID practices infiltrate runoff into groundwater, they help to maintain lower surface water temperatures. LID improves environmental quality, protects public health, and provides a multitude of benefits to the community.

Economical. Because of its emphasis on natural processes and micro-scale management practices, LID is often less costly than conventional stormwater controls. LID practices can be cheaper to construct and maintain and have a longer life cycle cost than centralized stormwater strategies. The need to build and maintain stormwater ponds and other conventional treatment practices will be reduced and in some cases eliminated. Developers benefit by spending less on pavement, curbs, gutters, piping, and inlet

[8] National Resource Defense Council. Stormwater Strategies: Community Strategies: to Runoff Pollution, "Chapter 12: Low-Impact Development", http://www.nrdc.org/water/pollution/storm/chap12.asp.
[9] Ibid.

structures.[19] LID creates a desirable product that often sells faster and at a higher price than equivalent conventional developments.

Flexible. Working at a small scale allows volume and water quality control to be tailored to specific site characteristics. Since pollutants vary across land uses and from site to site, the ability to customize stormwater management techniques and degree of treatment is a significant advantage over conventional management methods. Almost every site and every building can apply some level of LID and integrated management practices that contribute to the improvement of urban and suburban water quality.

Adds value to the landscape. It makes efficient use of land for stormwater management and therefore interferes less than conventional techniques with other uses of the site. It promotes less disturbance of the landscape and conservation of natural features, thereby enhancing the aesthetic value of a property and thus its desirability to home buyers, property users, and commercial customers. Developers may even realize greater lot yields when applying LID techniques. Other benefits include habitat enhancement, flood control, improved recreational opportunities, drought impact prevention, and urban heat island effect reduction.

Achieves multiple objectives. Practitioners can integrate LID into other urban infrastructure components and save money. For example, there is a direct overlap between stormwater management and Combined Sewer Overflow (CSO) control such that municipalities can use LID to help remedy both problems. Lot-level LID applications and integrated stormwater management practices combine to provide substantial reductions in peak flows and improvements in water quality for both combined and separated systems.

Follows a systems approach. LID integrates numerous strategies, each performing different stormwater management functions, to maximize effectiveness and save money. By emulating natural systems and functions, LID offers a simple and effective approach to watershed sensitive development.

Makes sense. New environmental regulations geared toward protecting water quality and stabilizing our now degraded streams, rivers, lakes, and estuaries are encouraging a broader thinking than centralized stormwater management. Developers and local governments continue to find that LID saves them money, contributes to public relations and marketing benefits, and improves regulatory expediencies. LID connects people, ecological systems, and economic interests in a desirable way.

2. Low-Impact Development (LID) Techniques

This section provides some practical advice and recommendations on how to implement many of the more common LID techniques with particular application as retrofit projects in existing development. See Section D (***Low Impact Development Checklist for Caroline County***) matrices of recommended LID practices for new development, redevelopment and retrofit actions.

a) Rain Gardens and Bio-retention

A rain garden is a garden which takes advantage of rainfall and stormwater runoff in its design and plant selection. Usually, it is a small garden which is designed to withstand the extremes of moisture and concentrations of nutrients, particularly Nitrogen and Phosphorus, that are found in stormwater runoff. rain gardens are sited ideally close to the source of the runoff and serve to slow the stormwater as it travels downhill, giving the stormwater more time to infiltrate and less opportunity to gain momentum and erosive power.

Figure 11: **Residential Yard Rain Garden**

On the surface, a rain garden looks like an attractive garden. It may support habitat for birds and butterflies, it may be a formal landscape amenity or it may be incorporated into a larger garden as a border or as an entry feature. What makes it a rain garden is in how it gets its water and what happens to that water once it arrives in the garden.

Below the surface of the garden, a number of processes are occurring which mimic the hydrologic action of a healthy forest. Soils are engineered and appropriate plants selected for the rain garden. The garden is a small bio-retention cell in which stormwater is cleaned and reduced in volume once it enters the rain garden. Nitrogen and phosphorus levels and overall sediment loads in the stormwater are reduced by the action of the plants and growing media on the water. Multiple rain gardens over an area will have a positive cumulative effect on both the volume and quality of stormwater run-off.

There are two basic types of rain gardens – under-drained and self-contained. Both types of rain gardens are used to improve stormwater quality, reduce runoff volumes and generally facilitate infiltration of cleaned water. Which type of garden is selected to be built is a balance of volumes of water to be treated, existing soil conditions, available space, and budget for the project.

In some cases where infiltration is not desired, the under-drain system can move excess water into a conventional storm sewer pipe system. Cases where infiltration would not be desirable would be if the bottom of the garden has less than 4' of clearance to the seasonal mean high water table or if the adjacent soils are contaminated and the cleaned water from the garden would become re-contaminated by coming in contact with the adjacent native solids.

Rain gardens are designed to be drained within four hours after a 1" rain event. Under-drained rain gardens typically are designed to drain within 2 hours of the design storm event. This is achieved through the use of highly porous planting media and under-drains which carry the cleaned rainwater away from the garden. As a result, the plants selected for the bio-retention cell need to be able to withstand both the extremes of flooding and drought. Plants on the upper edges of the garden are often xeric in their cultural requirement descriptions with plants lower in the garden being more adapted to floodplain conditions. Many riparian edge species are particularly well suited to the extreme environments of rain gardens.

Rain gardens with no under-drain typically hold moisture longer, particularly in the lower areas of the garden. Plants selected for this garden should be able to tolerate inundation for a more extended period of time. However, as in the case of the under-drained rain garden, the surface is drained within four hours, although the soil may be saturated. As in the bio-retention cell, soils are amended with a very porous planting media, minimally to a depth of 8" and ideally to a depth of 2'- 3'. The lower the amount of soil amendment added when the garden is built, the more necessary it is to have plants adapted to prolonged periods of wetness. As with the under-drained rain garden, the plants on the upper edges of the garden will need to be more xeric in their cultural requirements than the plants in the lower areas. In both types of gardens, the ground is excavated and the planting media is imported to the site. The imported planting media should be clean and weed seed free. A liner may or may not be used, depending on the local conditions.

In both the under-drained and self-contained rain gardens, the success of the garden is greater when you start with healthy and smaller, rather than larger, plants. Some plants listed are successful in rain gardens only when they are installed small and have a chance to adapt to the conditions as they grow. Plants with deep fibrous roots tend to have a competitive advantage in a rain garden and provide the most cleaning and filtration benefits to the environment. Typical rain gardens are populated with natives or native cultivars because those are most well adapted to a locality, but other ornamental horticultural plants that are non-invasive but able to grow in the garden conditions can also be excellent choices.

Most of the examples of rain gardens that are available to review are populated with either herbaceous perennials, woody shrubs or trees. This does not mean that annuals are not a possible choice for such gardens; rather it means that the gardens constructed have been designed for habitat and low maintenance goals rather than purely seasonal aesthetics and color effects. Some annuals are good candidates for a higher maintenance version of a rain garden. [10]

Bio-retention BMPs are applicable as on-lot retention facilities that are designed to mimic pre-developed hydrologic regimes that naturally control hydrology through infiltration and evapotranspiration. They are especially suited to residential and commercial areas where additional landscaping can provide aesthetic benefits. It is recommended that bioretention areas incorporate vegetated filter strips as pretreatment devices. In commercial areas where space is limited, parking area sweeping is recommended as a pre-treatment practice.

b) Vegetated Swales, Buffers, and Strips

Filter strips are typically bands of close-growing vegetation, usually grass, planted between pollutant source areas and a downstream receiving water body. They also can be used as outlet of pretreatment devices for other stormwater control practices. For LID sites, a filter strip should be viewed as only one component in a stormwater management system.

LID filter strips should be planted in combination with existing natural vegetation to meet the needed filter width. Usually the minimum width for grassed filter areas is 15 feet, while that of wooded areas is 35 feet.

Grassed swales are earthen channels covered with a dense growth of hardy grass, such as Tall Fescue. Grassed swales are applicable alongside roads. Grassed swales are typically located at the outlets of road culverts, as conveyance between homes, and as highway medians. LID swales may be designed with a curvilinear width to maximize storage volume for detention. For LID sites, side slopes outside a Rights-Of-Way may be 2:1. Longitudinal slope in swales must be minimized to a maximum of 2%.

c) Tree Preservation

Preservation and expansion of the community tree canopy is important due to the many eco-system service benefits provided by trees. For example, each year, 100 mature trees:

- catch 77,000 gallons of rainwater
- remove 1.2 tons of carbon dioxide (thought to be a cause of global warming)
- remove 130 pounds of pollutants

Trees reduce the amount of pollutants in sewer systems, saving communities millions of dollars in water treatment costs. Moreover, trees cool our cities by reducing heat generated by building and paved surfaces.

Trees in residential neighborhoods:

- save homeowners 20% on annual cooling costs and 2-10% on heating costs
- increase property values by 10 to 15%
- Trees in shopping districts influence people to make longer and more frequent shopping trips
- spend 12% more for goods

Trees shade cars in parking lots, making the shaded parking spot in front of a store the most desirable in the lot!

[10] From: Low Impact Development Center, Inc. ; www.lowimpactdevelopment.org and www.lid-stormwater.net.

Trees help purify the air by absorbing pollutants. Trees reduce the amount of water-borne pollutants that reach streams and rivers. Trees provide habitat for birds and other wildlife, maintaining a balance with nature even in urban areas. Trees speed healing and nurture more positive attitudes in hospital patients who can see trees from their rooms.

d) Roof Leader Disconnection

In areas where downspouts from roof gutters are connected to storm sewers, disconnecting these downspouts and using other methods to collect (see rain barrels, cisterns and rain gardens)this rainwater to allow for reuse and infiltration of the rainwater back into the water table is a recommended practice.

e) Rain Barrels and Cisterns

Rain barrels operate by retaining a pre-determined volume of rooftop runoff. An overflow pipe provides some detention beyond the retention capacity of the rain barrel. Rain barrels also can be used to store runoff for later reuse in lawn and garden watering.

The required capacity of a rain barrel is a function of the rooftop surface area that drains to it, the inches of rainfall required to fill the barrel, and water losses, due mainly to evaporation. A general rule of thumb to utilize in the sizing of rain barrels is that 1 inch of rainfall on a 1000 square foot roof will yield approximately 600 gallons.

Figure 12:
Typical rain barrel set-up for a residential property.

Sample Calculation
Rain barrel volume can be determined by calculating the roof top water yield for any given rainfall, using the following general equation:
Equation 1. $V = A^2 \times R \times 0.90 \times 7.5\ gals./\ ft.^3$ where:
V = volume of rain barrel (gallons) A^2 = surface area roof (square feet) R = rainfall (feet) 0.90 = losses to system (no units) 7.5 = conversion factor (gallons per cubic foot)
For Example: one 60-gallon barrel would provide runoff storage from a rooftop area of approximately 215 square feet for a 0.5 inch (0.042 ft.) of rainfall **60 *gallons* = 215 *ft.*^{2} x 0.042 *ft.* x 0.90 x 7.5 *gallons/ft.*^{3}**

Cisterns can be sized following the same general formula given above for rain barrels. Due to the size of rooftops and the amount of imperviousness of the drainage area, increased runoff volume and peak discharge rates for commercial or industrial sites may require large capacity cisterns. Individual cisterns can be located beneath each downspout, or the desired storage volume can be provided in one large, common cistern that collects rainwater from several sources. Pre-manufactured residential-use cisterns come in sizes ranging from 100 to 1,400 gallons. Cisterns designed for more than just supplemental use, for full time domestic use, should be sized based upon a minimum of 30 gallons per day per person when considering all potential domestic water uses. Cisterns should be located for easy maintenance or

Figure 13: **1500 gallon cistern fed from two gable downspouts.**

replacement.

A sample cistern model can be viewed at http://www.treepeople.org/trees/cistern2.htm.

f) Permeable Pavement Materials

Pervious paving materials can be used at many site locations to replace standard impervious pavement. These locations may include parking spaces, driveways, access roadways, and sidewalks. Pervious material can include pavers (interlocking concrete blocks or bricks), porous pavement (concrete or asphalt), gravel, and reinforced lawn. While brick pavers, concrete block pavers, and gravel are themselves impervious, their use can reduce impervious areas by providing gaps between individual pieces through which runoff can reach a pervious base course and/or subsoil. Turf blocks (open cells made of concrete, plastic, or composite materials that are filled with soil and planted with grass) may also be utilized to replace traditionally paved areas. Porous concrete and porous asphalt are generally considered fully pervious and may be viable options for areas that need to be fully paved. Municipal regulations must be reviewed to determine whether the use of pervious paving materials is permissible at a development site. It may also be appropriate to discuss the use of pervious paving materials with local officials and Soil Conservation Districts.

In selecting the type of pervious paving material to be used at a development or redevelopment or retrofit project site, consideration must be given to anticipated character and intensity of use of the material's surface. This will include the type, weight and size of vehicle, and the traffic rate and frequency. For example, due to their non-monolithic character, pavers, turf blocks, and gravel can achieve significant infiltration but may not be able to withstand regular traffic loads. As such, these materials may be more appropriate for overflow parking areas and emergency or maintenance access roads. Since its monolithic character is similar to standard impervious paving, porous pavement will have more general use, provided that adequate subsurface drainage is available. In all cases, consideration must be given to the effects of snow plowing and other maintenance activities.

For further discussion of permeable paver options and their benefits, see:
http://www.lid-stormwater.net/permpavers_benefits.htm

g) Soil Amendments

Site preparation prior to the construction of residential units typically involves removing or stock piling the existing vegetation and topsoil. This has an immediate hydrologic impact because of the reduction in soil structure, pore space, organic content and biological activity. After construction, a thin layer of topsoil is usually spread on the now very compacted subsoil and then the area is seeded or sodded.

Figure 14: **Comparative Views of Native and Disturbed Soils**

Magnified view of native soil

Magnified view of disturbed soil

(Source: King County DNR Solid Waste Division)

The combination of soil compaction and loss of organic matter has several undesirable consequences:

- With the infiltration capacity of the site significantly reduced, rainwater more quickly runs off into local streams. This, in turn, tends to increase erosion, scouring and the sediment load.
- The rate of groundwater recharge decreases.

- Due to the soil compaction and the loss of organic matter, the availability of subsurface water to plants is reduced.
- The increased volume and frequency of runoff carries pollutants with it that include pesticides, fertilizers, animal wastes and chemicals such as phosphorous and nitrogen.
- Homeowners now have to apply pesticides, fertilizers and irrigation water in increasing amounts in order to maintain their landscapes.

Soil additives, or amendments, can be used to minimize development impacts on native soils by restoring their infiltration capacity and chemical characteristics. After soils have been amended their improved physical, biological and hydrological characteristics will make them more effective agents of stormwater management.

Soil Amendment Component Properties/Quantities

Homeowners contemplating a full or partial restoration of their lawn might consider adding soil amendments to their yard prior to re-seeding with turfgrass seed. Soil amendments can include not only compost and mulch but also top soil, lime and gypsum. These additional components help offset any nutritional deficiencies and control acidity. A thorough soil analysis of the native soil is required to determine the optimum quantity for each component in order to obtain the maximum benefit from compost amending. Soil amendment components should generally be mixed and applied in the following manner.

- *Compost.* The amount of compost to be applied depends upon the organic content of the existing soil as well as the targeted amount of the proposed soil amendment. Compost typically has an organic content of 45-60% and is often used as the sole means of providing organic material to the soil profile. In soils that have organic contents of less than one percent, 8 to 13 percent by soil weight is a typical target of a proposed soil amendment with compost. As a general rule, a 2-to-1 ratio of existing soil to compost, by loose volume, will achieve the desired organics level. Locally available compost may be utilized if it is of high enough quality and available at a cost effective price.

Figure 15: **Uniform mixing of compost using a rototiller** (Source: US Composting Council)

- *Nutrients and Lime.* If the soil pH is below 6.0 the addition of pelletized dolomite is recommended, with application rates in the range of 50 to 100 pounds per 1000 square feet. Nitrogen requirements usually range from 2 to 8 pounds per 1000 square feet, with slow release water-insoluble forms being the preferred method. Other soil additions may include sulfur and boron with the amount needed determined by soil analysis.

- *Gypsum.* Hydrated calcium sulfate ($CaSO_4 \bullet 2H_2O$) is sometimes applied to a soil in order to increase calcium and sulfur without affecting the pH, as well as to enhance a soil's structure in high clay content soils.

h) Impervious Surface Reduction and Disconnection

Reduction of the impervious surface area associated with urban development through the use of permeable pavers and other porous surfaces, use of soil amendments (to increase the porosity of soil), disconnection of downspouts, use of rain barrels, cisterns and rain gardens,; all contribute to helping restore the natural hydrologic cycle, returning more stormwater to the ground water table, making it available to support vegetation and contributing to improved water quality.

i) Pollution Prevention and Good Housekeeping[11]

This item emphasizes the importance of pollution prevention through the proper operation and maintenance of vehicles and other mechanical equipment (and proper handling/disposal of grease, oil, and other lubricants resulting from periodic maintenance of this equipment), as well as the careful handling and use of fertilizers, pesticides and herbicides which can be carried by stormwater to receiving bodies of water, contaminating water quality and adversely affectign aquatic life (both flora and fauna).

Additionally, this practice also refers to the proper use and maintenance of implemented LID practices so that they continue to function. removing pollutants, helping to hold and slowly release stormwater and continue to promote infiltration and absorption of stormwater through normal hydrological processes.

j) Rooftop Gardens

Rooftop gardens and "green roofs", also known as vegetated roof covers, eco-roofs or nature roofs, are multi-beneficial structural components that help to mitigate the effects of urbanization on water quality by filtering, absorbing or detaining rainfall. They are constructed of a lightweight soil media, underlain by a drainage layer, and a high quality impermeable membrane that protects the building structure. The soil is planted with a specialized mix of plants that can thrive in the harsh, dry, high temperature conditions of the roof and tolerate short periods of inundation from storm events.

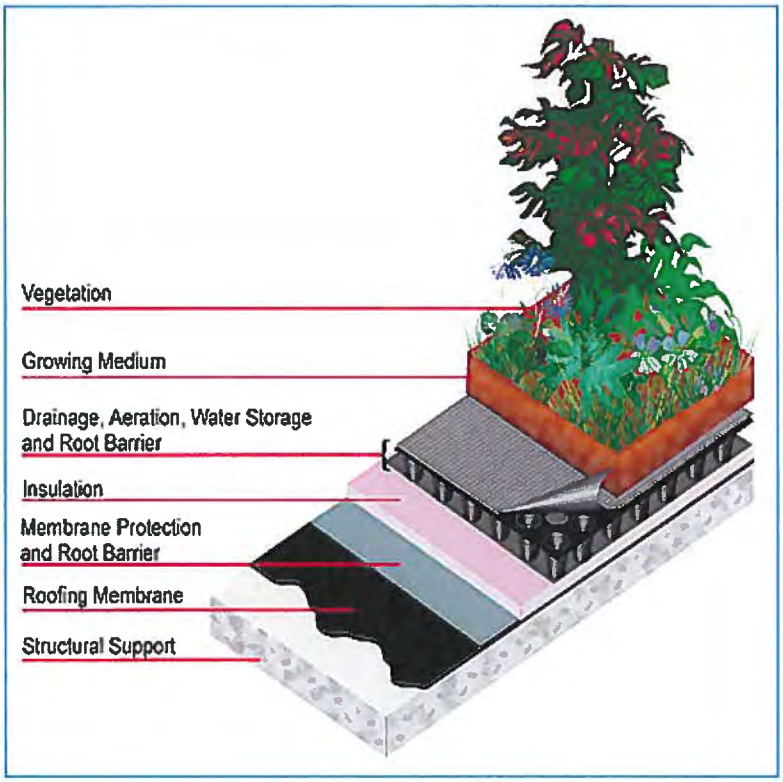


Figure 16: **Green Roof Design Cross-Section**
(Source: American Wick Drain Corp.

[11] See: http://www.ecy.wa.gov/programs/wq/stormwater/municipal/EPAGreenInfrastructureOMMarch2013.pdf

Historically, engineered green roofs originated in northern Europe, where sod roofs and walls have been utilized as construction materials for hundreds of years. The development of contemporary approaches to green roof technology began in the urban areas of Germany over 30 years ago. Because of ongoing water quality degradation and a limited existing infrastructure for the control of stormwater in these areas, few alternatives were available for improved stormwater management designs. Environmental and economic considerations helped spur the development of green roof systems that could provide the necessary stormwater treatment on-site. Roofscapes, Inc. have developed a numerical saturate-unsaturated flow simulation model that investigates the variables influencing the effectiveness of green roofs.

Green roofs provide stormwater management benefits by:

- Utilizing the biological, physical, and chemical processes found in the plant and soil complex to prevent airborne pollutants from entering the storm drain system.
- Reducing the runoff volume and peak discharge rate by holding back and slowing down the water that would otherwise flow quickly into the storm drain system.

Figure 17: **Chicago City Hall Urban Heat Island Initiative project**
(Source: Roofscapes, Inc.)

Green roofs are not only aesthetically pleasing, but they also:

- Reduce city "heat island" effect
- Reduce CO_2 impact
- Reduce summer air conditioning cost
- Reduce winter heat demand
- Potentially lengthen roof life 2 to 3 times
- Treat nitrogen pollution in rain
- Negate acid rain effect
- Help reduce volume and peak rates of stormwater

The hydrologic processes that can be influenced by design choices and aid in the management of stormwater include:

- Interception of rainfall by foliage, and subsequent evaporation.
- Reduction in the velocity of runoff.
- Infiltration.
- Percolation.
- Shallow subterranean flow, through the soil.
- Root zone moisture uptake and evapotranspiration.

k) Sidewalk Storage

Sidewalks can be made of pervious material, such as porous pavement or concrete, or designed to provide runoff storage and infiltration in their stone base. Where impervious material is used, sidewalks can be disconnected from the drainage system, which allows some of the runoff from them to re-infiltrate in adjacent pervious areas such as vegetated swails, planting strips, and rain gardens.

D. LOW IMPACT DEVELOPMENT CHECKLIST FOR CAROLINE COUNTY[12]

DEFINITION: Low Impact Development (LID) is a stormwater management approach that minimizes the hydrological impact of development by using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to its source.

BACKGROUND: Virginia has adopted revised stormwater regulations that will be implemented by Caroline County beginning July 1, 2014. These regulations encourage LID through use of the runoff reduction method to reduce the impacts of development on water quality. This checklist is intended to help developers implement LID principles and reduce the cost of compliance with the stormwater regulations.

Follow these four steps to comply with Virginia's new Stormwater Regulations:

1. Use Environmental Site Design Principles to minimize impervious area and preserve forest and open space.
2. Apply runoff reduction practices.
3. Add pollutant removal practices to meet water quality goals if necessary.
4. Add additional BMPs to meet channel protection and flood control requirements.

1. ENVIRONMENTAL SITE DESIGN

Employing the steps below will allow the developer to reduce the post development nutrient load for the site, thereby reducing the amount of nutrients that need to be reduced using expensive structural BMPs.

Practices		Yes	No	N/A
1	Conduct environmental mapping of site prior to layout.			
2	Conserve natural areas (forest, wetlands, steep slopes, and floodplains).			
3	Preserve stream, wetland, and shoreline buffers.			
4	Minimize disturbance of permeable soils.			
5	Maintain natural flow paths across site.			
6	Layout buildings to reduce clearing and grading of site.			
7	Grade site to promote sheet flow from impervious areas to pervious areas.			
8	Reduce impervious area.			
	• Use minimum required width for roadways.			
	• Utilize pervious pavements for parking and pedestrian areas.			
9	Maximize disconnection of impervious cover.			
10	Identify potential hotspot generating areas for stormwater treatment.			
11	Integrate erosion and sediment control practices and post-construction stormwater management practices into a comprehensive site plan.			
12	Use tree planting to convert turf areas into forest.			

2. RUNOFF REDUCTION PRACTICES

These practices reduce the volume of runoff leaving a site and can also be credited towards the channel protection and flood control requirements. Implementing the practices below first will maximize the nutrients removed by the stormwater management practices because they reduce runoff and remove pollutants.

The table below indicates which practices are appropriate for use in Caroline County. Specifications for these practices and coastal plain modifications can be found at the BMP Clearinghouse[13]. Developers should also consult with Caroline County planning staff for additional restrictions.

[12] Adapted from: HRPDC, "Low Impact Development Checklist for Hampton Roads", 2013.

RUNOFF REDUCTION PRACTICES	PREFERRED	ACCEPTED	RESTRICTED	LEVEL 1 EFFICIENCY (%)	LEVEL 2 EFFICIENCY (%)	LEVEL 3 EFFICIENCY (%)
Rooftop Disconnection	X			25	50	A & B Soils CA*
Sheet flow to open space	X			50	75	A & B Soils
Grass Channels			X	24	30/40	A & B Soils CA*
Vegetated Roofs		X		45	60	YES
Rainwater Harvesting	X			UP TO 90	NA	NA
Permeable Pavement	X			59	81	LIMITED
Infiltration		SMALL SCALE	LARGE SCALE	63	93	LIMITED
Bioretention	X			55	90	LIMITED
Dry Swales	X			52	76	LIMITED

* CA = Compost Amendments

3. POLLUTANT REMOVAL PRACTICES

If implementation of environmental site design principles and runoff reduction practices do not meet the stormwater regulations phosphorus target, then pollutant removal practices will need to be implemented. The table below identifies the practices appropriate for use in Caroline County area Specifications for these practices and coastal plain modifications can be found at the BMP Clearinghouse.

POLLUTION REMOVAL PRACTICES	PREFERRED	ACCEPTED	RESTRICTED	LEVEL 1 EFFICIENCY (%)	LEVEL 2 EFFICIENCY (%)	LEVEL 2 APPLICABILITY IN CAROLINE CO.
Wet Swales	X			20	40	Yes
Filtering Practices		X		60	65	Limited
Constructed Wetlands	X			50	75	Yes
Wet Ponds		X		45	65	Yes
Extended Detention Ponds			X	15	31	Limited

4. CHANNEL PROTECTION AND FLOOD CONTROL PRACTICES

If implementation of the runoff reduction practices does not meet the channel protection and flood control requirements, then additional practices will need to be constructed or pollution prevention practices will need to be modified to provide additional retention for quantity control.

RESOURCES:

1. Virginia Stormwater Management Handbook: http://www.dcr.virginia.gov/laws and regulations/ lr2i.shtml
2. Virginia Stormwater Management BMP Clearinghouse Standards and Specifications: http://vwrrc.vt.edu/swc/NonProprietaryBMPs.html
3. Virginia Runoff Reduction Method Compliance Spreadsheet: http://www.dcr.virginia.gov/laws and regulations/lr2f.shtml

[13] http://vwrrc.vt.edu/swc/NonProprietaryBMPs.html

E. CAROLINE COUNTY DEVELOPMENT APPLICATION, REVIEW AND PERMIT FEES

§ 29-1. Fee Schedule

A. CAROLINE COUNTY BUILDING, ELECTRICAL, MECHANICAL AND PLUMBING PERMIT APPLICATION FEES SHALL BE AS FOLLOWS:

1. RESIDENTIAL FEE SCHEDULE AND PERMITS

(a) Plan Review Deposits

{1} Plan Review Deposit, for a single family dwelling, Modular, Double-wide manufactured home, and single-wide manufactured home, of $200.00 shall be payable when application is submitted, which will be credited to the total cost calculated for the permits. Deposits shall not be refundable if the permits are not picked up within 90 days after approval. 200.00

{2} Plan review deposit for accessory structures, payable when application is submitted, which will be credited to the total cost calculated for the permits. Deposits shall not be refundable if the permits are not picked up within 90 days after approval 100.00

(b) Plan Review Fees as Follows

{1} Residential Dwelling Units, Additions, Alterations, Manufactured Homes, and Industrialized Homes

(a) Per Square Foot - 1st Floor	0.15
(b) Per Square Foot - 2nd Floor, Finished Basement	0.15
(c) Per Square Foot - Unfinished Basement, Attached Garage or Other Unfinished Area	0.15
(d) Minimum Permit	100.00
(e) Revisions to building plans previously approved	75.00

{2} **Accessory Structures:** Storage sheds over 200 sq ft. detached garages, workshop, underground structures, etc.

(a) Per Square Foot	0.12
(b) Minimum Permit	100.00

{3} **Electrical: Per Dwelling Unit**

(a) 200 amp or less	75.00
(b) More than 200 amp	150.00
(c) Over 5,000 sq. ft.	0.15/sq ft
(d) Per Addition, Alteration, Garage or Accessory Structure	50.00
(e) Per Service Upgrade or Change	75.00
(f) Manufactured Home	50.00

{4} **Plumbing**

(a) Per Dwelling Unit (up to 5,000 square feet)	75.00
(b) Over 5,000 square feet	0.15/sq ft
(c) Per Addition, Alteration, Garage or Accessory Structure	50.00
(d) Manufactured Home	50.00

{5} **Mechanical**

(a) Per Dwelling Unit up to 5,000 sq. ft.	75.00
(b) Over 5,000 sq. ft.	0.15/sq ft
(c) Per Addition, Alteration, Garage or Accessory Structure	50.00
(d) Manufactured Home	50.00
(e) Fire Suppression System 0 - 2,000 sq. ft.	45.00
(f) Fire Suppression System - Over 2,000 sq. ft.	55.00
(g) Change out or Replacement of Gas Furnace, Boiler, Gas Logs or Fireplace	50.00

{6} **Miscellaneous**

(a) Replace roof or siding (not required but upon request)	35.00
(b) Brick Veneer	35.00
(c) Deck - up to 400 sq. ft.	100.00

(d) Deck - over 400 sq. ft.	0.25/sq ft
(e) Chimney	40.00
(f) Fireplace	60.00
(g) Docks	50.00
(h) Stoops/Porch	50.00
(i) Fence over 6 feet tall	50.00
(j) Generator	100.00
(k) Hot Tub	100.00
(l) Replace Water/Sewer Line	50.00

2. **COMMERCIAL AND INDUSTRIAL FEE SCHEDULE**

(a) **Plan Review Deposits**

{1} Plan Review Deposit, for Commercial buildings under 5,000 square feet, shall be payable when application is submitted, which will be credited to the total cost calculated for the permits. Deposits shall not be refundable if the permits are not picked up within 90 days after approval. *Minor Alterations will require $100.00 deposit.* 500.00

{2} Plan Review Deposit, for a commercial building, 5,000 square feet or larger, shall be payable when application is submitted, which will be credit to the total cost calculated for the permits. Deposits shall not be refundable if the permits are not picked up within 90 days after approval. *Minor Alterations will require $100.00 deposit.* 750.00

{3} Third party plan review fee will be charged at: 75.00 / hour

(b) **Plan Review Fees are as follows:**

{1} **New Construction**	
(a) Plan Review Under 5,000 sq. ft.	225.00
(b) Plan Review over 5,000 sq. ft.	300.00
(c) Per Square Foot - All Floor Area	0.17/sq ft
(d) Amendments to building plan previously reviewed or approved	100.00
{2} **Addition or Alteration**	
(a) Plan Review Under 5,000 sq. ft.	125.00
(b) Plan Review over 5,000 sq. ft.	200.00
(c) Per Square Foot - All Floor Area	0.17/sq ft
(d) Amendments to building plan previously reviewed or approved	75.00
{3} **Electrical**	
(a) Per Service - 200 Amps or Less	125.00
(b) Per Service - More than 200 Amps ($50 per 100 amps)	200.00
(c) Per Square Foot of Floor Area	0.15/sq ft
(d) Minimum Permit	125.00
{4} **Plumbing**	
(a) 0 up to 7,499 square feet	125.00
(b) 7,500 square feet or greater	0.15/sq ft
{5} **Mechanical**	
(a) 0 to 4,000 square feet	150.00
(b) 4,001 - 20,000 square feet	250.00
(c) over 20,000 square feet	325.00 plus 0.15/sq ft
{6} **Fire Suppression System**	
(a) Sprinkler New Construction	2.50/head; 300.00 min.
(b) Sprinkler Alteration	2.50/head; 100.00 min.
(c) Sprinkler Limited Area	200.00
(d) Type 1 & 2 Hoods	100.00/hood
(e) Fire Dampers	15.00/damper; 600.00 min.
(f) Fire Suppression for Hood	100.00
(g) Reinspection or Retest of Sprinkler Flow Test	100.00
{7} **Cell Towers (Building, Electrical & Plan Review)**	
(a) New Construction (single tenant)	1,850.00
(b) Co-location	1,350.00

3. **MISCELLANEOUS FEE SCHEDULE**

{1} **Construction Trailer (includes all fees)**	250.00
{2} **Sales Trailer (includes all fees)**	350.00
{3} **Fuel Storage Tanks**	
(a) Up to 50,000 Gallons – Total Per Site	125.00
(b) Over 50,000 Gallons – Total Per Site	275.00
(c) Fuel Tank Removal – In-ground	150.00
(d) Fuel Tank Removal – Above Ground	100.00
{4} **Water Storage Tanks**	100.00
{5} **Swimming Pools (includes Electrical & Mechanical Fees)**	
(a) Above Ground – Residential	100.00
(b) In Ground - Residential	250.00
(c) Public	350.00
{6} **Elevators**	
(a) Per Floor & Minimum Electrical	75.00
{7} **Signs**	
(a) Per Sign - Non-Illuminated	35.00
(b) Per Sign - Illuminated	100.00
(c) Per Sign more than 20 feet above grade	75.00
{8} **Fire Alarms**	
{9} **Demolition - per permit**	30.00
{10} **Amusement Devices**	
(a) Per Kiddie Ride	15.00
(b) Per Major Ride	35.00
(c) Per Spectacular Ride	55.00
{11} **Commercial Re-roof**	150.00
{12} **Generator Commercial**	150.00
{13} **Tents**	100.00
Tents w/ Electric	150.00

***Building Official reserves the right to assign fees for items not shown**

4. **ADMINISTRATIVE FEES**

(a) Fast Trac Plan Review	.04/sq ft per copy
(b) Plan Review for Lost Plans	50.00
(c) Modification of Code (Inspection only)	50.00
(d) Modification to the Code - Certificate issued by Building Official	50.00
(e) Stop Work Order/Notice of Violation	200.00
(f) Building Change of Use/Occupancy Load	50.00
(g) C/O Existing Building	25.00
(h) Evaluation of Existing Structure	100.00
(i) Appeal to Local Building Code Board of Appeals	250.00
(j) Post Construction Permit Fee (construction w/out permit)	Twice the amount of the permit fee, or $250.00 - whichever is greater

§36-137 *2%* State Levy Shall be applied to all Fees.

§ 29-2. Reinspection Fee

A reinspection fee of $100.00 will be charged for each failed inspection. This Reinspection fee shall be paid within thirty **(30)** days of the invoice date. Failure to pay within the thirty (30) day billing period shall result in the suspension of all inspections until all reinspection fees that are due, are paid in full. No final inspection for the certificate of occupancy will be scheduled until all reinspection fees, are paid in full to the Department of Inspections.

§ 29-3. Refunds

When a permit is returned or becomes void due to inactivity or abandonment, the permit holder may return the permit along with a written request for a refund within six (6) after issuance of the permit,

(a) The refund will be pro-rated according to the number of inspections completed.

(b) A plan review and processing fee of 20% or $200.00, whichever is greater, for all accessory structures, will be deducted from the original permit fee.
(c) A plan review and processing fee of 20% or $100.00, whichever is greater for single-family dwelling, modular, double-wide manufactured or single-wide manufactured home, will be deducted from the original permit fee.
(d) A plan review and processing fee of 20% or $500.00, whichever is greater for commercial structures under 5,000 sq. ft., will be deducted from the original permit fee.
(e) A plan review and processing fee of 20% or $750.00, whichever is greater for commercial structures 5,000 sq. ft. or larger will be deducted from the original permit fee.

§ 29-4. Abandonment of Work

Any permit shall become expired if work on the site authorized by the permit is not commenced within six months after issuance of the permit, or if the authorized work on the site is suspended or abandoned for a period of six months after the time of commencing the work; however, permits issued for building equipment such as plumbing, electrical and mechanical work shall not become invalid if the building permit is still in effect. It shall be the responsibility of the permit applicant to prove to the building official that work has not been suspended or abandoned. Upon written request, the building official may grant one or more extension of time, not to exceed one year per extension. Permits that become expired will be revoked and the permit fee forfeited. **The permit can be reinstated one time within six (6) months of issuance for a $75.00 fee.**

§ 29-5. Revocation of Permit

Any permit that has been inactive for more than six (6) months shall be revoked and the permit fee forfeited. A new permit shall be required prior to resumption of the project.

B. Caroline County planning and zoning application and inspection fees shall be as follows:

A. Zoning Permit Fees	
{1} Single Family dwelling, Temporary Permits & Home Occupations	75.00
{2} Single Family Dwelling Proffered Subdivision	100.00
{3} Temporary / Annual Zoning Permits	75.00 initial permit/25.00 annual renewal each year thereafter
{4} Accessory structures & uses, additions & fences above 6' in height	75.00
{5} 911 (New or Change)	50.00
{6} Non Residential Permit: New structure/Accessory Structure/Addition	150.00
{7} (a) Certificate of Appropriateness (Change in Use)	50.00
(b) Zoning Certification Letter/Verification of Nonconforming Uses, Administrative Permit	250.00
{8} Comprehensive Plan Amendments	
(a) <10 acres	2,500.00 + 50.00/acre
(b) <100 acres	5,000.00 + 50.00/acre
(c) > 100 acres	10,000.00 + 50.00/acre
{9} Antenna on existing tower (tower consultant fee)	850.00
B. Rezoning Fees	
{1} Agricultural Preservation/Rural Preservation Districts	1,250.00 + 50.00/acre
{2} Rural Residential	3,000.00 + 50.00/acre
{3} Residential (R) Districts	3,000.00 + 50.00/acre
{4} Business (B) Districts	3,000.00 + 50.00/acre
{5} Industrial (M) Districts	3,000.00 + 50.00/acre
{6} Planned Unit Development (PUD)	4,000.00 + 50.00/acre
{7} Proffer Amendment	Base fee plus $100.00 per each proffer requested to be amended
{8} Deferral	150.00 plus advertising costs
C. Special Exception Fees	
{1} Major Home Occupation	1,000 + 50.00/acre
{2} Cell Tower	4000.00
{3} Any Other Use	2,000 + 50.00/acre
{4} Renewal of Special Exception	1/2 base fee + 50.00/acre
{5} Deferral	150.00 plus advertising costs
D. Variance / Appeal / Exception Request Fees	
{1} Variance	600.00
{2} Administrative Appeal	600.00

{3} Administrative Variance	600.00
{4} Deferral (Plus advertising costs)	150.00
{5} Exception to Chesapeake Bay Preservation Act	600.00
E. Sign Permit Fees	
{1} Each sign up to 25 square feet in area	50.00
{2} Each sign of 25 to 100 square feet in area	100.00
{3} Each sign of more than 100 square feet in area	100.00 + 0.25/sq ft
{4} Temporary sign permit up to 20 square feet in area	25.00
F. Site Plan Review Fees (includes E&S Plan Review)[14]	
{1} Planned Unit Developments	1,500 + 50.00/acre
{2} Residential development	1,500 + 50.00/acre
{3} Commercial/Industrial	1,500 + 50.00/acre
{4} Multi-family development	1,500 + 50.00/acre
{5} Manufactured Home Parks	1,500 + 50.00/acre
{6} E&S Control Plan Only Review (Commercial, Major Subdivision, Site Plan)	300 + 50.00/acre
{7} Minor Site Plan	400.00
{8} Minor Revision to Approved Plan	200 + 50.00/acre
{9} Major Revision to Approved Plan	1/2 Required Fee
(a) Waivers	Base fee + 100 / waiver request
{10} Developer Agreements/Bond Administration (18 month agreement max.)	2,500.00
G. Subdivision Review Fees	
{1} Minor Subdivisions, Family Divisions, Boundary Line Adjustment,	200.00 + 50.00/new lot
{2} Lot Line Vacations	100.00
{3} Major Subdivisions	
(a) Concept Plan	250.00
(b) Plat (Preliminary or final) with public improvements	1,250 + 50.00/lot
(c) Plat with no public improvements	500.00 + 50.00/lot
(d) Exception	150.00/exception request
H. Land Disturbance Permit Fees (12 Month Permit)	
{1} Single Family Dwelling < 1 acre	300.00
{2} Single Family Dwelling > 1 acre (maximum 3 disturbed acres)	150.00 up to one acre +150.00/each additional disturbed acre
{3} Land Disturbance (Commercial/Residential)	300 + 150.00/disturbed acre
{4} Temporary Land Disturbance (residential site only, 1 acre maximum)	150.00 / 60 day perm
{5} Annual Renewal	
(a) Active Site	Same as original fee (above)
(b) Dormant Site	50% of original fee (above)
{6} Reinspection Fee	100.00
J. Copies/Documents/Miscellaneous	
{1} Zoning Ordinance	35.00
{2} Subdivision Ordinance	15.00
{3} Comprehensive Plan	50.00
{4} Future Land use map 8 x 10	5.00
{5} Street Address Book	85.00
{6} Street Map	5.00
{7} Erosion/Stormwater Ordinance	10.00
{8} Large Future Land Use Map	15.00
{9} Color Copy - 8 x 10	1.00
{10} Color Copy - 11 x 17	3.00
{11} Building Code Book from ICC	95.00
{12} All Other Document Mailings	Cost plus $5.00
{13} Legal Review Fees (Zoning Amendments, Site Plans & Major Subdivisions w/Public Improvements)	500.00

[14] See Stormwater Management Program Review Fees in Section F.

F. CAROLINE COUNTY STORMWATER MANAGEMENT PROGRAM APPLICATION & REVIEW FEES

4VAC50-60-790. General.

A. The fees for individual permits, general permit coverage, state permit or registration statement modification, or state permit transfers are considered separate actions and shall be assessed a separate fee, as applicable.

B. Until July 1, 2014, the department is authorized to assess a $125 re-inspection fee for each visit to a project site that was necessary to check on the status of project site items noted to be in noncompliance and documented as such on a prior project inspection.

4VAC50-60-820. Fees for an individual permit or coverage under the General Permit for Discharges of Stormwater from Construction Activities.

The following fees apply to coverage under the General Permit for Discharges of Stormwater from Construction Activities issued by the department prior to a VSMP authority being approved by the board in the area where the applicable land-disturbing activity is located, or where the department has issued an individual permit or coverage under the General Permit for Discharges of Stormwater from Construction Activities for a state or federal agency for which it has approved annual standards and specifications

General / Stormwater Management - Phase I Land Clearing ("Large" Construction Activity - Sites or common plans of development equal to or greater than five acres)	$750
General / Stormwater Management - Phase II Land Clearing ("Small" Construction Activity - Sites or common plans of development equal to or greater than one acre and less than five acres)	$450
General / Stormwater Management - Small Construction Activity/Land Clearing (Sites within designated areas of Chesapeake Bay Act localities with land disturbance acreage equal to or greater than 2,500 square feet and less than one acre) (Fee valid until July 1, 2014	$200

The following fees apply to coverage under the General Permit for Discharges of Stormwater from Construction Activities for a state or federal agency that does not file annual standards and specifications or an individual permit issued by the board or coverage under the General Permit for Discharges of Stormwater from Construction Activities issued by the board.

For coverage under the General Permit for Discharges of Stormwater from Construction Activities, no more than 50% of the base fee set out in this part shall be due at the time that a stormwater management plan or an initial stormwater management plan is submitted for review in accordance with 4VAC50-60-108. The remaining base fee balance shall be due prior to the issuance of coverage under the General Permit for Discharges of Stormwater from Construction Activities.

When a site or sites are purchased for development within a previously permitted common plan of development or sale, the applicant shall be subject to fees ("total fee to be paid by applicant" column) in accordance with the disturbed acreage of their site or sites according to the following table:

Fee type	Total fee to be paid by applicant (includes both VSMP authority and department portions where applicable)	Department portion of "total fee to be paid by applicant" (based on 28% of total fee paid *)
Chesapeake Bay Preservation Act Land-Disturbing Activity (not subject to General Permit coverage; sites within designated areas of Chesapeake Bay Act localities with land disturbance acreage equal to or greater than 2,500 square feet and less than 1 acre)	$290	$0

Fee type	Total fee to be paid by applicant (includes both VSMP authority and department portions where applicable)	Department portion of "total fee to be paid by applicant" (based on 28% of total fee paid *)
General/Stormwater Management -Small Construction Activity/Land Clearing (Areas within common plans of development or sale with land disturbance acreage less than 1 acre)	$290	$81
General/Stormwater Management-Small Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater than one acre and less than 5 acres)	$2,700	$756
General / Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater than five acres and less than 10 acres)	$3,400	$952
General / Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater than 10 acres and less than 50 acres)	$4,500	$1,260
General / Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater than 50 acres and less than 100 acres)	$6,100	$1,708
General / Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater than 100 acres)	$9,600	$2,688
Individual Permit for Discharges of Stormwater From Construction Activities (This will be administered by the department)	$15,000	$15,000
* If the project is completely administered by the department such as may be the case for a state or federal project or projects covered by individual permits, the entire applicant fee shall be paid to the department.		

4VAC50-60-825. Fees for the modification or transfer of individual permits or of registration statements for the General Permit for Discharges of Stormwater from Construction Activities.

The following fees apply to modification or transfer of individual permits or of registration statements for the General Permit for Discharges of Stormwater from Construction Activities issued by the board. If the state permit modifications result in changes to stormwater management plans that require additional review by the VSMP authority, such reviews shall be subject to the fees set out in this section. The fee assessed shall be based on the total disturbed acreage of the site. In addition to the state permit modification fee, modifications resulting in an increase in total disturbed acreage shall pay the difference in the initial state permit fee paid and the state permit fee that would have applied for the total disturbed acreage in 4VAC50-60-820.

No modification or transfer fee shall be required until such board-approved programs exist. No modification fee shall be required for the General Permit for Discharges of Stormwater from Construction Activities for a state or federal agency that is administering a project in accordance with approved annual standards and specifications but shall apply to all other state or federal agency projects.

General / Stormwater Management – Small Construction Activity/Land Clearing (Areas within common plans of development or sale with land disturbance acreage less than one acre)	$20
General / Stormwater Management – Small Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater than one and less than 5 acres)	$200
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater than five acres and less than 10 acres)	$250
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater than 10 acres and less than 50 acres)	$300
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater than 50 acres and less than 100 acres)	$450
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater than 100 acres)	$700
Individual Permit for Discharges of Stormwater From Construction Activities	$5,00

4VAC50-60-830. State permit maintenance fees.

The following annual permit maintenance fees apply to each state permit identified below, including expired state permits that have been administratively continued. With respect to the General Permit for Discharges of Stormwater from Construction Activities, these fees shall apply until the state permit coverage is terminated, and shall only be effective when assessed by a VSMP authority including the department when acting in that capacity that has been approved by the board. No maintenance fee shall be required for a General Permit for Discharges of Stormwater from Construction Activities until such board approved programs exist. No maintenance fee shall be required for the General Permit for Discharges of Stormwater from Construction Activities for a state or federal agency that is administering a project in accordance with approved annual standards and specifications but shall apply to all other state or federal agency projects. All regulated MS4s who are issued joint coverage under an individual permit or general permit registration shall each pay the appropriate fees set out below:

MS4 Program Reviews (not currently applicable in Caroline Co.)	
Municipal Stormwater / MS4 Individual (Large and Medium)	$8,800
Municipal Stormwater / MS4 Individual (Small)	$6,000
Municipal Stormwater / MS4 General Permit (Small)	$3,000
Chesapeake Bay Preservation Act Review	
Chesapeake Bay Preservation Act Land-Disturbing Activity (not subject to General Permit coverage; sites within designated areas of Chesapeake Bay Act localities with land-disturbance acreage equal to or greater than 2,500 square feet and less than 1 acre)	$50
General / Stormwater Management – Small Construction Activity/Land Clearing (Areas within common plans of development or sale with land disturbance acreage less than 1 acre)	$50
General / Stormwater Management – Small Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance equal to or greater than one acre and less than 5 acres)	$400
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater than five acres and less than 10 acres)	$500
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or	$650

areas within common plans of development or sale with land-disturbance acreage equal to or greater than 10 acres and less than 50 acres)	
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater than 50 acres and less than 100 acres)	$900
General / Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater 100 acres)	$1,400
Individual Permit for Discharges from Construction Activities	$3,000

ATTACHMENT 3.1

VIRGINIA ASSESSMENT AND SCENARIO TOOL GENERAL FEATURES AND USER'S GUIDE

PREPARED BY:

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November 2011

Interstate Commission on the Potomac River Basin

51 Monroe Street, Suite Plaza East 8

Rockville, Maryland 20850

NOTICE

This report has been prepared by the Interstate Commission on the Potomac River Basin for the Virginia Department of Conservation and Recreation. Information in this report is derived from numerous sources including public documents found on the Chesapeake Bay Program's website and personal communications with Chesapeake Bay Program staff.

VAST Proc Example

Steps	Notes	Links
Login		http://vasttool.org/
If you do not have a log in username or password, select 'create a new account '	There are no restrictions on who may have a login.	http://vasttool.org/AddUser.aspx
Edit login credentials	Select Edit Profile at the top right of the page, under the VAST banner. You must be logged in to see this.	
Create a baseline scenario		
Scenario Name	Use something that is informative. Including date or version in name can be helpful.	
Description	Required free text field. Can be edited later.	
Landuse, animal and septic data year	These are your initial conditions. All planning scenarios related to the Chesapeake Bay TMDL should be on the 2010 year.	
Geographic scale	Users may select something broad here, and then be more specific when adding BMPs later. The scale selected here limits the options users see in drop-down lists when entering BMPs.	
Geographic area	You can select more than one Geographic Area by holding down the ctrl key and clicking on your selections.	
Wastewater base data	These are permits, and VA DEQ has the authority to issue. Data may be viewed, but not changed. General recommendation is to select WIP 1 since that is what DEQ used for the Chesapeake Bay TMDL.	
CSO Connections	Typically not necessary to select.	
CBP BMPs or All BMPs	CBP BMPs are those accepted by the Chesapeake Bay Program as valid.	
Copy BMPs from a scenario	For a baseline, select the most recent Progress. Progress is from July 1 to June 30 and is usually available around May of the following year.	
Share Scenario	You can change this later. Select no users initially.	
Add		
Calculate Summary		
Download Files	Download Files becomes available once the calculate summary has finished calculating. It is located on a drop down menu under Calculate Summary	

VAST Proc Example

Steps	Notes	Links
Download the Estimated Loads	The files download as zipped files. You must unzip them first, then open with Excel.	
Copy to excel	Keep this as your initial baseline scenario, the one to which you will compare your other scenarios.	
Define land area (Pre-VAST work)		
Identify the area for which you want to make a plan	Identify all areas that overlap with what you want, e.g.: select counties, CBSegs/Segmentsheds, or PDCs.	See Geographic Scales sheet in this spreadsheet.
	The model segmentation viewer tool may be useful. This is a separate tool from VAST.	http://gis.chesapeakebay.net/modeling/
	The VAST Appendix 11 of geographic references shows the relationship among the various geographic areas.	http://vasttool.org/Documentation.aspx
Identify drainage area/treatment area for urban BMPs. Estimate acreage of pervious vs. impervious contributing areas.	If the Chesapeake Bay Program land use does not match your local land use, there are several actions and options.	
	1) Enter the actual land use on the land use tab and let VA-DCR know there is an issue.	
	2) Determine the proportion of your land use to that in VAST. Enter the proportional acres. For example: Say you have 80 acres of impervious and 150 acres of pervious, but the Chesapeake Bay Program/VAST has 100 acres of impervious and 130 acres of pervious. You have BMPs that cover 50 acres of impervious and 30 acres of pervious. For impervious, calculate as 80/100=50/x. Solve for x as (50*100)/80=62.5 acres. For pervious, calculate as 150/130=30/y. Solve for y as (130*30)/150=26 acres.	
	3) Enter BMPs as percents. VAST allows choices of acres treated or percents. Enter as percent of acres treated for each land use.	
Create project specific scenarios		
Scenario Name		
Description	Required free text field. May be useful to indicate what is different in this scenario vs. the baseline scenario.	
Landuse, animal and septic data year	Use the same year as you used in your baseline scenario so that your comparison is comparable.	

VAST Proce Example

Steps	Notes	Links
Geographic scale	Select a scale that is not broader than what you entered in your baseline scenario.	
Geographic area	You can select more than one Geographic Area by holding down the ctrl key and clicking on your selections.	
Wastewater base data		
CSO Connections		
CBP BMPs or All BMPs		
Copy BMPs from a scenario	Copy BMPs from the baseline scenario you created.	
Share Scenario	You can change this later. Select no users initially.	
Add BMPs on the appropriate sector page	The BMPs are defined in Appendix 4. You may find it useful to have this open while working.	http://vasttool.org/Documentation.aspx
Land use	Select the land use. Several of these may be encompassed in a group. See Appendix 3	http://vasttool.org/Documentation.aspx
Geographic scale at which you want to enter the data.	The scale determines what is in the drop down box for the geographic area.	
Geographic area	These will be only the areas that are encompassed by the scale you entered on the scenario creation page. You must enter the BMP separately for each geographic area. For example, a unique PDC is required at the BMP level.	
Enter amount and unit		
Notes	These may be used to indicate the funding source, regulation, or other information about the "how" of implementation. Notes may be viewed in the BMP table on the screen or in the BMP file that is downloaded after you calculate summary.	
Add	If a message comes up that "the data entered overlaps with ....", then that BMP is already in there. Edit the amount in the table directly or delete and re-add if you want to change the land use, geography, or units.	
You will need to enter each BMP once for each drainage area/geography.	If you are only changing the amount of implementation or notes, you can edit the BMP table on the screen.	
Select calculate summary, download land use loads, and open in excel.		
Run additional scenarios as needed. Compare initial loads to adjusted loads.	Use the compare scenarios option or the downloaded files from each scenario.	

VAST Proc Example

Steps	Notes	Links
Compare scenarios		
Enter geographic scale and area	These must not be larger than the scale at which your scenarios were created.	
Select scenarios	You must select three. Compare your baseline to two other scenarios. The 2012 Progress will have been on 2012 initial conditions, so don't select that unless your initial conditions were also for 2012.	
Compare	You may also compare in more or less detail with the downloaded files from each scenario.	

User's planning scale	VAST Input Scale	VAST Output Scale
	County	County
	county with federal split	Federal
	Segmentshed	CBSEG
		Major Basin
		Land River Segment
	state*	
	SWCD*	
	PDC*	

* These are aggregations of counties.

Mapping tool for land river segments: http://gis.chesapeakebay.net/modeling/
Note that this tool is a completely separate product from VAST.

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ACRONYMS AND GLOSSARY OF TERMS USED IN THIS REPORT

	Product
	Sum
Additive BMPs	BMP that may exist on the same acre of land as another BMP. Same as Mutually exclusive BMP and includes land use change BMPs and BMPs that are found in the same group.
AFO	Animal Feeding Operations
BMP Group	The group to which a set of BMPs may belong. There may be only one BMP in a group.
BMP	Best Management Practices
CAFO	Concentrated Animal Feeding Operations
CBP	Chesapeake Bay Program
DEL	Delivered, load delivered by the CBP Watershed Model-HSPF to the Chesapeake Bay
Effectiveness value	The fraction reduced that is not considered available for delivery, calculated for a BMP
EOS	Edge of Stream, load delivered by the CBP Watershed Model-HSPF to edge of the stream
EPA	United States Environmental Protection Agency
FIPS	Federal information processing standards. These are codes unique for each county
Geographical area	The areas designated at the selected geographical scale in VAST
Geographical scale	The scale at which scenarios may be defined
HEL	Highly erodible land
HGMR	Hydrogeomorphic regions
Hightill	Tillage of land that meets the definition of conventional till
HSPF	Hydrological Simulation Program -FORTRAN
HYO	The land use hay without nutrients
Input deck	Files that are delivered to the Chesapeake Bay Program for running through the Scenario Builder and the Watershed Model. Term dates from the time when punch cards were used in mainframe computers. The decks were decks of cards that stored digital information represented by the presence or absence of holes in predefined positions. Now an obsolete technology.
Lbs	pounds
Lowtill	Tillage of land that meets the definition of conservation till

Multiplicative BMP	BMP that may exist on the same acre of land as another BMP. Same as overlapping BMPs and consecutive BMPs and treatment train BMPs
Mutually exclusive BMP	BMP that may exist on the same acre of land as another BMP. Same as additive BMP and includes land use change BMPs and BMPs that are found in the same group.
Nitrogen	Refers to total nitrogen
Overlapping BMP	BMP that may exist on the same acre of land as another BMP. Same as multiplicative BMPs and consecutive BMPs and treatment train BMPs
PAS	The land use pasture
Pass through factor	The fraction of a load that is not reduced but is considered available for delivery, calculated for a BMP
Phosphorus	Refers to total phosphorus
Reduction	The fraction of a load that is not considered available for delivery, calculated for a BMP
Sediment	Refers to total suspended solids
Treatment train BMP	BMP that may exist on the same acre of land as another BMP. Same as multiplicative BMPs and consecutive BMPs and overlapping BMPs
TRP	Trampled, the degraded riparian buffer land use
VAST	Virginia Assessment Scenario Tool
VEG	Vegetation
WIP	Watershed Implementation Plan

INTRODUCTION

VAST is developed as a web-based nutrient and sediment load estimator tool to streamline and facilitate Watershed Implementation Plan (WIP2) and Milestone preparation consistent with the Chesapeake Bay Total Maximum Daily Load (TMDL). The purpose of the tool is to simplify the process for building scenarios and to provide initial estimates of nitrogen, phosphorus, and sediment load reductions using a variety of implementation practices. VAST creates data files for direct input to the Chesapeake Bay Program's Scenario Builder, avoiding the need to transform or transpose such data. VAST also provides initial estimates of point and nonpoint source nitrogen, phosphorus, and sediment loads to the Chesapeake Bay (delivered) and loading to the land (edge-of-stream) prior to making CBP Watershed Model runs.

VAST is designed to be useful to people with a general knowledge of BMPs. Knowledge of models or BMP load reduction calculations is not necessary. VAST is available on-line to users with a login and password, which may be requested from the website. The web address is:

http://vasttool.org/

PLANNING YOUR SCENARIO

VAST allows users to rapidly create scenarios. Scenarios may be compared to each other, TMDL allocations, or the amount of nitrogen, phosphorus, and sediment with no BMPs implemented. Prior to beginning your first scenario, it is helpful to determine your starting point and reduction target. Many users find that the most convenient starting point is with the current progress, that is, the BMPs that are currently on the ground. These scenarios are saved as public scenarios and named YEAR Progress (e.g.: 2009 Progress). Some prefer to use a scenario with no BMPs, sometimes referred to as No Action scenario. A no action scenario is simple to create by adding a new scenario and going straight to the summary page with the pollutant loads. The Watershed Implementation Plan I (WIP1) scenario is also available as a starting point.

When planning a scenario, it is critical to be clear about the area for which a scenario is defined. There are multiple options available. If you are working with a team, coordination with other team members at the outset is key to making sure that scenarios are for either overlapping or distinct areas, depending on the objective.

The definitions of the land uses and BMPs are useful information to know in advance. The definitions are listed in Appendix Two and Appendix Three.

The BMPs that are applied on acres are input to VAST as percent of acres. This allows for easy transference of scenarios to new land uses. Entering BMPs as a percent also resolves the problem of different base land use areas between the Chesapeake Bay Program, which is used in VAST, and another land use source. Should a user prefer their own land use, they can simply determine the percent of acres they intend to implement a BMP on their own land use (or number of septic systems or animals, as the case may be), and then entering that percent into VAST. While the raw acres (or number of septic systems or animals) may be different than the user's land use, the percent is the same, leading to consistency in planning.

DATA INPUT SEQUENCE

Data is entered into VAST following the flow chart in Figure 1. After logging in, users may edit or add a new scenario. There is another scenario page with more details. The scenario list page also has a link to the compare scenarios function. The user may enter their own land use. Land use acres entered on this page will not be used in the load calculations. The data entered on the Land Use page are to inform analyses performed by the Commonwealth of Virginia. Following the two scenario pages, there are seven BMP pages with a total of over one hundred BMPs, generally segregated by sector. Each of these categories is represented as a separate page for entering BMPs. Users may move among the pages in any order desired. Lastly, there is a summary page with the results of the scenario and links to download data.

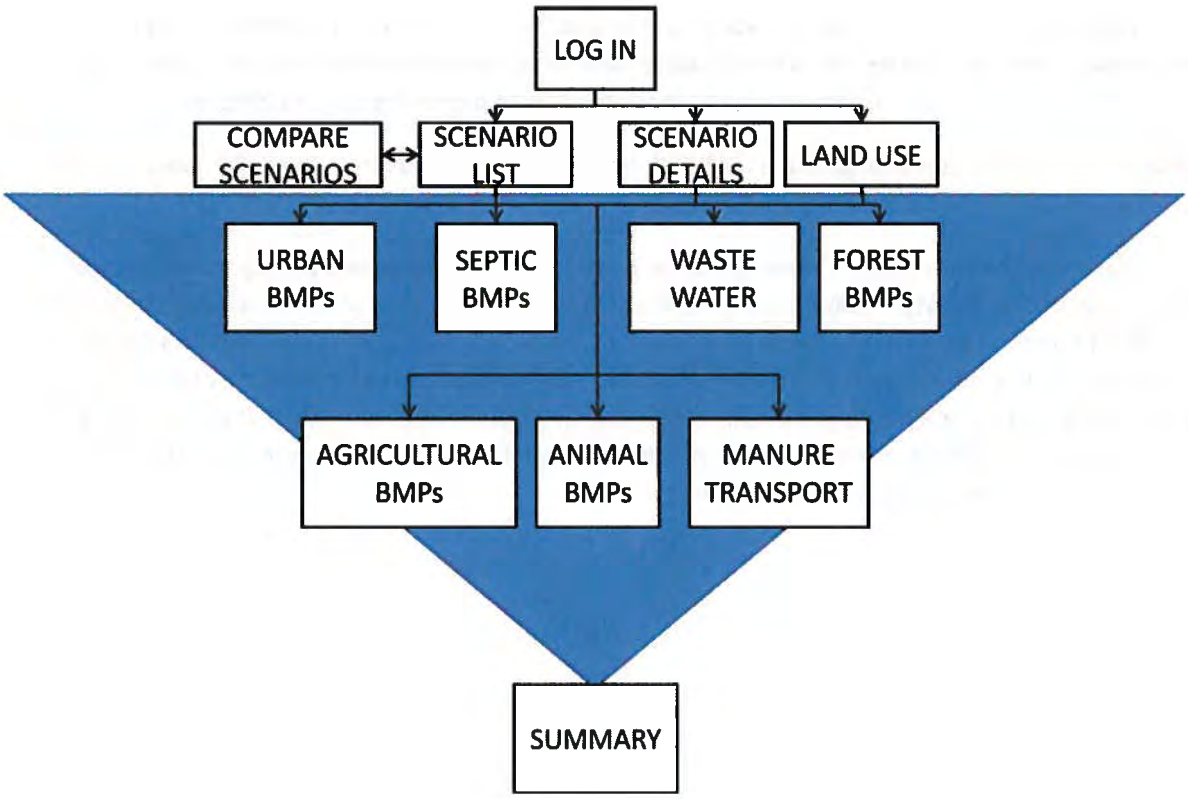


Figure 1: Data input sequence

GENERAL FEATURES

Each BMP page is formatted similarly to make the tool more intuitive to users. A table in the upper left of the screen shows the pre-BMP land use area, except for waste water. This table is always the pre-BMP condition, even where a scenario is created by copying another scenario. The information is summarized for the extent of the scenario. There is a link below that table to download the pre-BMP land use area.

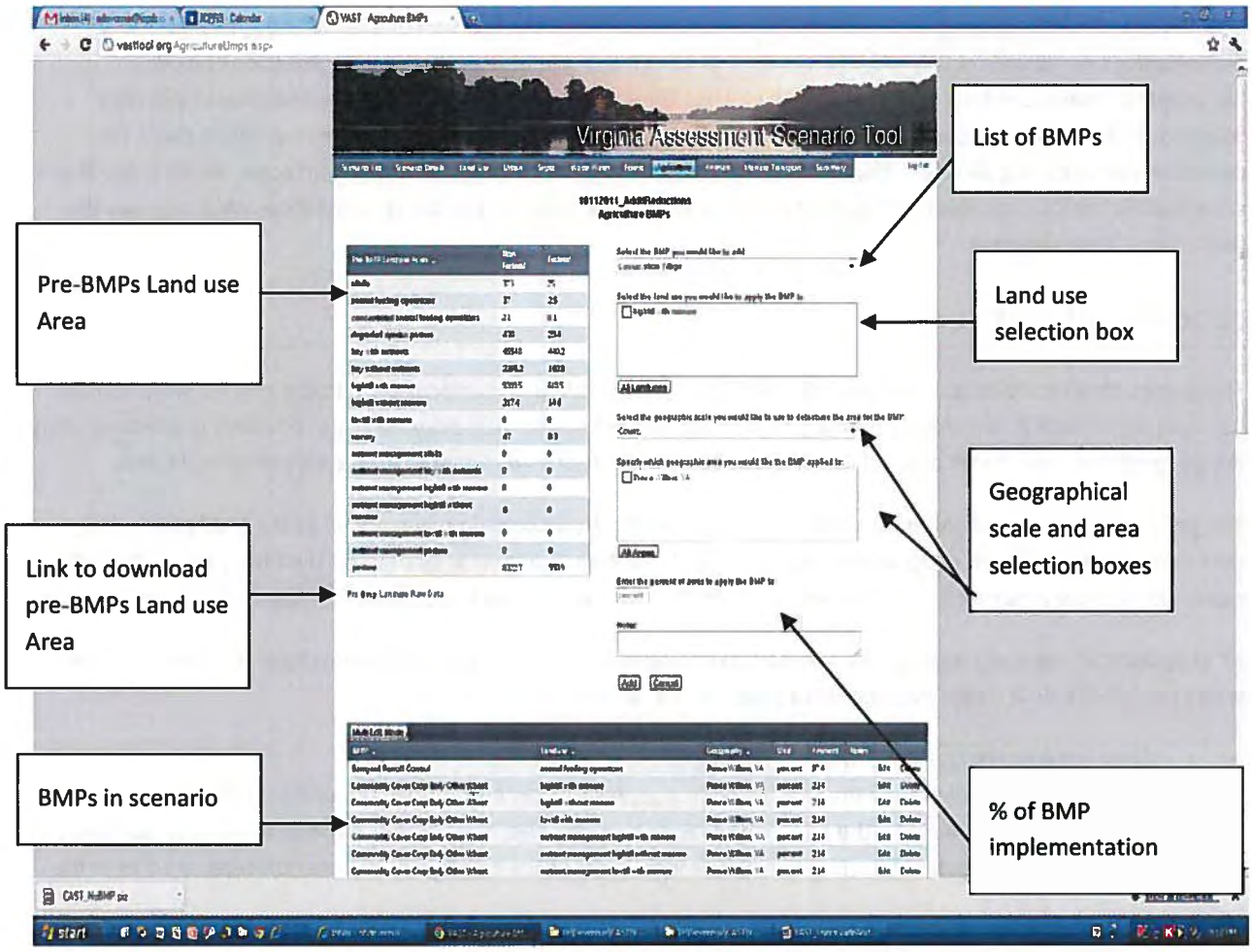


Figure 2: Page for entering BMPs

The right-hand portion of each BMP page has a set of pull-down menus or selection boxes. The first pull-down menu lists the BMPs available in that page. Following that are the selection boxes for land use, geographical scale, geographical area and percent of BMP implementation.

A notes section also is available to the user. This section provides the user with an opportunity to describe the strategy for using the BMP. The strategy may include the programmatic mechanism for implementing the BMP, the intended impact, the agreement with a particular person or department on the BMP, and perhaps a funding mechanism such as cost-share money available. This section accommodates 300 characters.

There is a table at the bottom of the screen that lists any BMPs that have been added in the scenario. BMPs and associated information are included in this table by clicking the *Add* button. In VAST, BMPs may be added in any

order without affecting the results. By default, the list is sorted by BMP name, land use and geographical area. The table may also be sorted by any other field by clicking on the arrow in the field name. The default sorting must be removed first by clicking on the arrows in any field that is already sorted. There are multiple options for editing the BMPs in this table.

GEOGRAPHICAL BOUNDARIES

Options to define the geographical boundaries of the scenario and the location of the BMPs are available in VAST. These options are found on the Add a New Scenario screen and the BMP screens in the selections boxes: Geographical scale, Geographical area, and Land Use. The geographical area restricts the scenario to the area selected. The geographic scale provides several options for defining the scale of the scenario. While there are several scales available, all calculations within the tool are made at the land-river segment scale, which is the finest scale used in the Chesapeake Bay Program's Watershed Model. Data that is downloaded from VAST includes the field of land-river segment.

GEOGRAPHICAL SCALE

The *geographical scale* defines the level of specificity at which the *geographical area* drop down list will populate. For instance, if state is selected, then the *geographical area* check box will list your state. If county is selected, then the *geographical area* check box will list all of the counties and cities designated with a FIPS code in Virginia.

The *geographical scale* selection list is available on the *Add a New Scenario* page as well as the BMP pages. The user may select a different *geographical scale* on the *Add a New Scenario* page than on the BMP pages. The BMP pages will list only geographical scales that are finer than that which was selected on the *Add a New Scenario* page.

All geographical scales are aggregations of land-river segments, and are step-wise hierarchical. The geographical scales are listed below with a description of geographical area.

1. State—the entire state as a whole, e.g., Virginia.
2. County—the jurisdictions with a unique FIPs, e.g., Accomack, Alexandria City, or Prince William
3. County with federal split—the jurisdictions with a unique FIPs, e.g., Accomack, Alexandria City, or Prince William with the option to select only the federal acres of the county or only the non-federal acres in the designated area.
4. Soil and Water Conservation District—the 47 districts that promote conservation of natural resources
5. Planning District Commission—21 districts that each encompass more than one county, city or town to work regionally toward achieving planning and implementation goals.
6. Segmentshed—the Chesapeake Bay Program Watershed Modeling unit that divides the Bay into segments that receive drainage from multiple areas.

It is recommended that users enter data at the scale for which they have information and can manage implementation.

GEOGRAPHICAL AREA

Geographical area is a multi-selection list available on both the *Add a New Scenario* page and the BMP pages. *Geographical area* lists the specific state, counties, or sub-counties. The *geographical area* in the list is restricted to

the type selected under *geographical scale*. For instance, if county is selected under *geographical scale*, then the *geographical area* multi-selection list will list all counties and those cities with a designated FIPS.

The geographical area selected on the *Add a New Scenario* page limits the area of the entire scenario. This means that the available geographical area on the BMP pages will only list those geographical areas within the geographical scale of the geographical area selected on the *Add a New Scenario* page. For example, where county with federal split then Anne Arundel-non-federal and Harford-non-federal were selected on the *Add a New Scenario* page, then the available geographical area on the BMP pages are only those non-federal lands within Anne Arundel and Harford counties.

It is possible to select a *geographical scale* on the BMP pages that is finer than the *geographical scale* selected for the scenario. If the *geographical scale* of "county" and the *geographical area* of "Prince William" were selected on the Scenario page, and the *geographical scale* of "county with federal split" was selected on a BMP page, then the *geographical area* available would include "Prince William-federal" and "Prince William-non-federal". It is valid to select a different geographical scale for the scenario than the geographical scale on the BMP page. A *geographical area* for BMPs must be finer than the *geographical area* selected for the scenario.

LAND USE

Land uses appear on the BMP pages. There are a total of 40 land uses; two are forest, 11 are urban and 17 are agricultural (Table 1). The list is comprised of the Chesapeake Bay Program land uses.

Table 1: Land uses in VAST

URBAN LAND USES	AGRICULTURAL LAND USES	FOREST LAND USES
CSS extractive	animal feeding operations	forest
CSS pervious developed	concentrated animal feeding operations	harvested forest
nonregulated extractive	nursery	
nonregulated pervious developed	hightill with manure	
regulated extractive	hightill without manure	
CSS impervious developed	lowtill with manure	
nonregulated impervious developed	nutrient management hitil with manure	
regulated impervious developed	nutrient management hitil without manure	
regulated pervious developed	nutrient management lotil	
CSS construction	alfalfa	
regulated construction	hay with nutrients	
	hay without nutrients	
	nutrient management alfalfa	
	nutrient management hay	
	nutrient management pasture	
	pasture	
	degraded riparian pasture	

The selection of the BMP restricts the land uses that appear on the drop-down list. For example, if the BMP selected is "Impervious Urban Surface Reduction", then the land uses listed are only those on which "Impervious Urban Surface Reduction" is eligible to be applied. These include:

- regulated impervious developed
- CSS impervious developed

- nonregulated impervious developed

The BMP may be applied to only those land uses on the list that the user selects. For all of the land uses the user selects, the geographical area selected and percent of the BMP entered will be the same. Should the user wish to have "Impervious Urban Surface Reduction" applied to 2% of regulated impervious developed, but only 1% of nonregulated Impervious developed, then the user must select the BMP twice—once for each combination of land use and percent of BMP. Alternatively, the user may enter the BMP once and then edit the BMP table to make changes to the percent implementation for each land use.

ANIMALS BY COUNTY

Animal BMPs are those BMPs that are applied to the land uses Animal Feeding Operation (AFO) and Concentrated Animal Feeding Operation (CAFO). These BMPs include:

1. Poultry Phytase
2. Swine Phytase
3. Dairy Precision Feeding and/or Forage Management
4. Poultry Litter Treatment
5. Biofilters
6. Lagoon Covers
7. Mortality Composters
8. Animal Waste Management System

The animal numbers in the pre-BMP reference table are only available at the county scale. That means that animal BMPs can only be applied to the geographical scale of state or county.

SEPTIC ZONES

The septic system BMPs may be applied to one septic zone: All Systems.

BMPS

There are over one hundred BMPs in VAST. To organize these, VAST has divided the BMPs into seven categories that generally follow source sectors. Each of these categories is represented as a separate page for entering BMPs and users may navigate among these pages in any sequence desired. These pages are:

1. Agriculture BMPs
2. Urban BMPs
3. Forest BMP
4. Animal BMPs
5. Manure transport
6. Septic BMPs
7. Waste water BMPs

BMP DESCRIPTION

The Chesapeake Bay Program has provided a description of BMPs (USEPA, May 2010). This information, with additional definitions for BMPs that were not included in the Chesapeake Bay Program's documentation is provided for reference in Appendix Three . Users are strongly encouraged to read this documentation because the BMP is not necessarily what one would expect from the name. There are instances where a BMP is modeled differently than users expect, and scenario results will not match users' expectations.

BMPs must be entered in percentages between 0% and 100%. VAST will accept any number for those BMPs where the implementation is measured in feet or specified by pounds. However, the Chesapeake Bay Program will review the information to verify that implementation at that level is reasonable. For example, if more feet of the BMP Stream Restoration are entered than feet of streams actually exist, then the Chesapeake Bay Program is likely to contact the submitter of such data and require an explanation. The notes section is a good place to specify how that number was determined.

VAST performs all BMP calculations the same way as the Chesapeake Bay Program, except for the animal BMPs, and manure transport. VAST performs all of the BMP calculations and the user does not need to know how these are performed to use the tool. For those users who would like to gain a better understanding of how BMP calculations are performed, information on BMP types, sequence, overlapping and mutually exclusive BMPs and the formulas used in the calculations are presented in Appendix Four .

UNITS FOR ENTERING BMPS ON LAND

It is only possible to enter BMPs on the percent of land use available rather than on the actual acres. There are several reasons for this. From time to time, the land use table may be modified. The scenarios created by users are portable to other land use versions since the BMPs are applied to a percent of available acres rather than the actual raw acres. VAST was designed for planning purposes and not for tracking implementation, so it is helpful to be able to port scenarios from one version of land use to another.

The land use in VAST was developed by the Chesapeake Bay Program and is used in Scenario Builder and the Watershed Model Phase 5.3.2. The land use was developed for the entire Chesapeake Bay Watershed and is not necessarily the best reflection of the land use in any one specific area. Local planners tend to know the land use in their jurisdictions best. Since the Chesapeake Bay Program's land use is being used for the TMDL allocations and milestones, VAST is also using this land use. Using percentages make it simpler to relate the level of implementation to the actual land use as opposed to the modeled land use in VAST, should there be differences.

Should a user have a different land use than the one in VAST, it is simple to convert the area the user intends to implement a BMP on their own land use to a percent (or number of septic systems or animals, as the case may be), and then enter that percent into VAST. While the raw acres (or number of septic systems or animals) may be different than the user's land use, the percent is the same, leading to consistency in planning.

Users who know the number of acres on which they would like to implement BMPs will need to convert the acres to a percentage. This is easily accomplished by dividing the number of acres of the BMP (numerator) by the total acres in the land use (denominator). Should the user wish to apply the BMP to several land use types, then the sum of the land use types is the denominator.

For example, the user knows that the Dry Extended Detention Ponds in a particular county treat a total of 1,000 acres. These ponds are on a combination of regulated pervious developed, regulated impervious developed,

nonregulated pervious developed, and nonregulated impervious developed. The pre-BMP land use acre table shows the following for those land uses:

Pre-BMP Landuse Acres	Non-Federal	Federal
CSS construction	20.4	0
CSS extractive	99.3	0
CSS impervious developed	6478.8	31.6
CSS pervious developed	12424	45.2
nonregulated extractive	29254	86.3
nonregulated impervious developed	188612	7078.9
nonregulated pervious developed	568664.6	6865.7
regulated construction	24833.3	22.7
regulated extractive	6139.6	124.5
regulated impervious developed	223559.1	12028.4

Pre-BMP Landuse Acres	Non-Federal	Federal
regulated pervious developed	583931.1	23636.2

The user calculates as follows:

Fraction implementation = 1,000 / (29,254 + 86.3 + 188,612 + 7,078.9 + 568,664.6 + 6,865.7 + 583,931.1 + 23,636.2)
Fraction implementation = 1,000 / 1,408,129
Fraction implementation = 0.00071
Convert to percent implementation = 0.00071 * 100
Percent implementation = 0.071%

The user would enter 0.071% for Dry Extended Detention Ponds. Should there be land use change BMPs, then the pre-BMP land use is no longer the most accurate starting point for calculation percent implementation. The user should reference **Error! Reference source not found.** to determine if they have land use change BMPs in their scenario.

GEOGRAPHICAL AREAS NOT ENTIRELY WITHIN THE CHESAPEAKE BAY WATERSHED

The tool models the state's portion of the Chesapeake Bay Watershed. There are some counties that only have a portion of the county in the Chesapeake Bay Watershed. The percent implementation the user enters is only for the land use area or number of animals shown in the Pre-BMP table on the left of the BMP screen.

The Pre-BMP land use table shows only the portion of the geographical area within the Watershed. The Pre-BMP animal table shows the number of animals in the entire county (data is not available at a finer scale). BMPs entered on the pages where the pre-BMP land use is shown is only applied to the portion of the county in the Chesapeake Bay Watershed. BMPs entered on the animal pages are applied to the entire number of animals in the county, and then proportioned to the area within the Chesapeake Bay Watershed. The assumption in this tool is the same one made by the Chesapeake Bay Program's Scenario Builder—the animals are equally distributed in the county.

BASE DATA IN VAST

The base data in VAST was generated from a Watershed Model run that specified some portion of land in every land use. Thus, there was a fraction of an acre in each land use for every land river segment specified. The unit area load (lb/A) was used to calculate the loads in VAST.

LAND USE CHANGE BMPS SINCE 2007

Since the base land use of 2010 includes land use change BMPs from prior years, then 2007 is used as a baseline for minimum land use change BMP implementation. The year 2007 is the last year that the Chesapeake Bay Program had actual data, years beyond 2007 are projections. Therefore, only increases in land use change BMPs beyond 2007 levels are counted, not decreasing levels of land use change BMPs.

Land use change BMPs are calculated as the amount greater than that submitted in 2007 Progress Scenario

your scenario BMP % land > 2007 Progress scenario % land

CONSERVATION TILLAGE

There is a level of conservation tillage assumed in the base data in VAST. The level of conservation tillage for each land river segment may be found in Appendix Six. If a user compares a scenario with no BMPs to a scenario with no conservation tillage, loads could increase since there is some conservation tillage in a no BMP scenario.

LOGIN PAGE

The login is secure and no one can see your input data unless you share your login name and password. If you were to share your login, and more than one person was using the account at the same time, then one person could overwrite your inputs.

There is an option to select *Request a Login*. When this link is selected, an email is created asking the user to complete the form below. It is important to share your contact information because updates to the tool and policies related to the TMDL and WIPs may be periodically emailed to all users.

First Name:
Last Name:
Organization:
Email:
User Name:
Password:

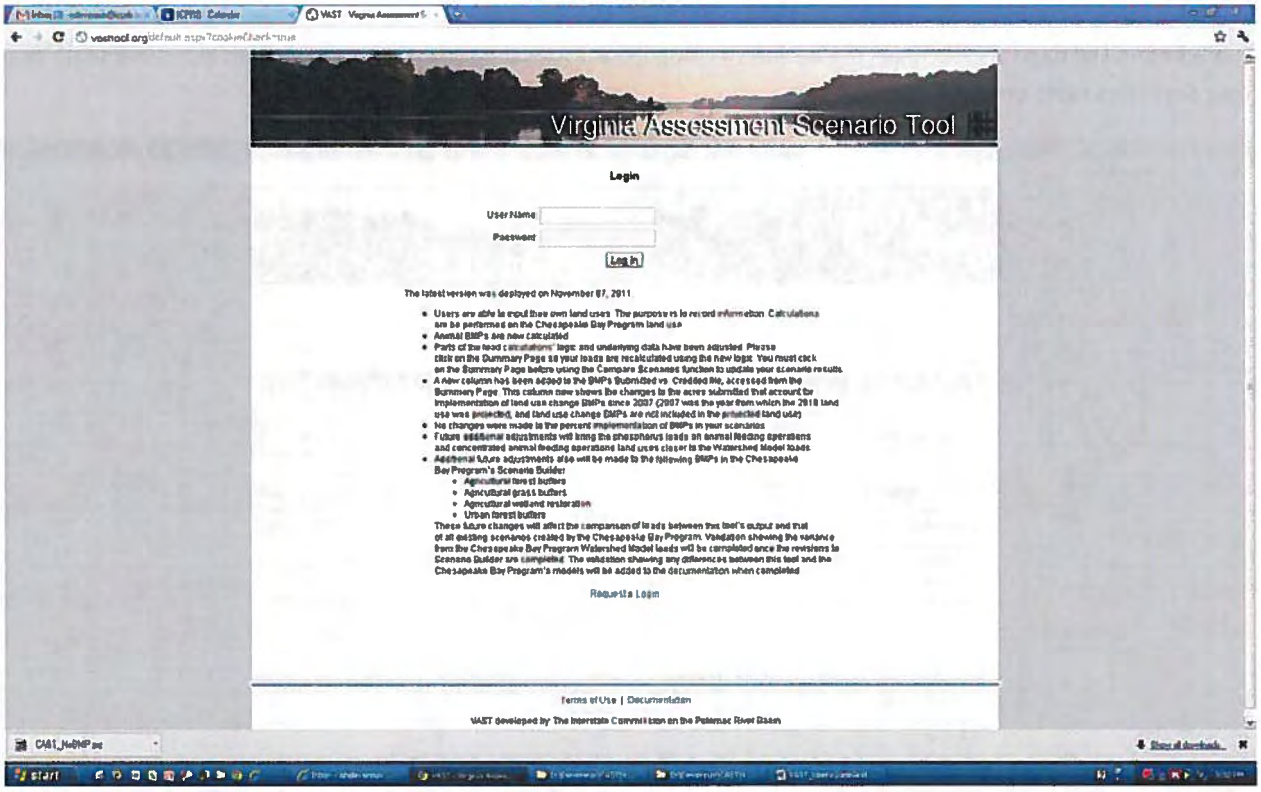


Figure 3: Login screen

The screen also has information about new features and recent updates added to the tool.

Once the user logs in, VAST jumps to the Scenario List page.

SCENARIO LIST PAGE

The Scenario List page lists any scenarios that the user created and all public scenarios. There is also an option to add a new scenario, which is located in the upper right portion of the page.

Your Scenarios are those scenarios that were created using the user's login name and password. No other user, including government employees, may see the private scenarios of another user. For private scenarios, there are links allowing the user to view, edit or delete their scenarios. Viewing only allows the user to view the summary page and download data from that page. The edit option allows users to make changes to that scenario. Delete permanently removes the scenario. This action may not be undone.

Users may view the results of public scenarios by clicking on the link labeled View next to each public scenario. The latest progress report should be a scenario available under the Public Scenarios list. Other users have created and made public additional scenarios. These scenarios were made public by clicking on "share this scenario" from the Scenario Details page. Login names are tied to a particular state. Users only see the public scenarios in their state.

If a user would like to build a scenario from a public scenario, they may select that option when adding a new scenario.

The Scenario List page also includes the option to compare among scenarios. This button is located underneath the Your Scenarios table on the right-hand side.

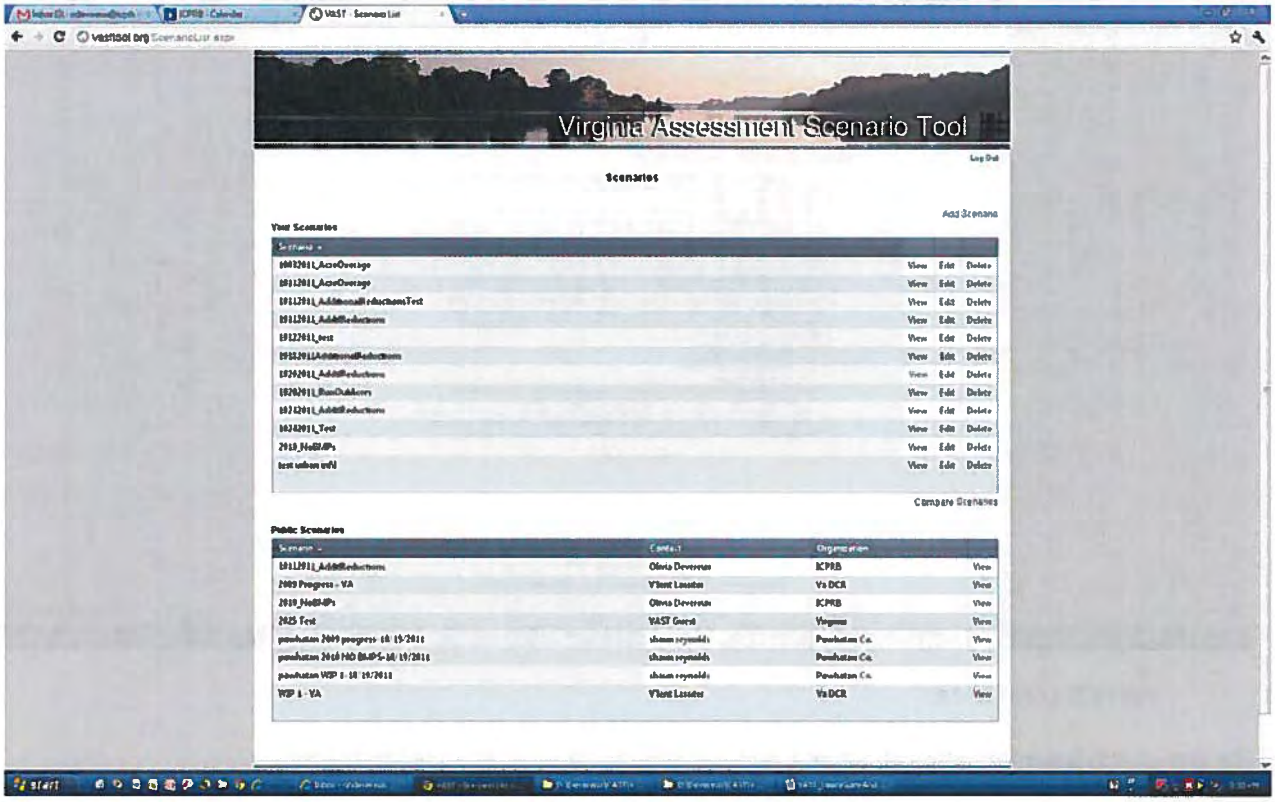


Figure 4: Scenario list screen

ADD NEW SCENARIO PAGE

The Add New Scenario page asks the user to input the following information:

Scenario Name: The user inputs the scenario name. It may prove useful to include a date and descriptive text as part of the name.

Description: The description is an unlimited text field and is a good place to store information specific to the entire scenario, such as other pollution reduction actions that are not accounted for in the scenario, and the agencies or departments that collaborated in creating the scenario.

Year of Land Use, Septic Systems, and Animal Data: The source data that is in VAST is produced by the Chesapeake Bay Program. It is the same source data used in Scenario Builder and the Watershed Model Phase 5.3.2. The only option available is the year 2010. As the Chesapeake Bay Program projects future data, then those data will be loaded into VAST. The Chesapeake Bay-wide TMDL was calculated using the 2010 source data. The WIPS, including plans for 2017 and 2025, are to be designed using the 2010 source data.

Geographical Scale: This field is for selecting the geographical scale of the scenario. Once the scenario is created, users may input BMPs at a scale finer than the one at which the scenario was created. Options include State, County, or County with Federal Split (See section Geographical scale for more information). County includes those areas designated with a unique FIPS.

Geographical Area: This field requires the user to select the specific area for the scenario. If county was selected as geographical scale, then the user would be asked to select one or more counties. If County with Federal Split were selected for Geographical Scale, then the user would be asked to select the county or counties and the federal or non-federal portion. Multiple selections may be made.

Waste Water Strategy: Waste water is governed by permits. Since there is an established process for issuing and renewing permits, the user must select the waste water source data. Options include the TMDL which is the data used in developing the Chesapeake Bay-wide TMDL, 2010 Progress, and others. Users may change the loads and concentrations of the permitted facilities on another screen, but there is not an option to add or remove facilities.

Chesapeake Bay Program Approved BMPs: There is a radio button which allows the user to choose between the Chesapeake Bay Program approved BMPs only or All BMPs including Virginia specific. There is only one Virginia-specific BMP, and that is continuous no till. There is actually a continuous no till under Bay Program BMPs as well as Virginia-specific, but it is calculated differently. The Virginia-specific version of this BMP allows the user to overlap continuous no till with cover crops on the same acre of land. The Bay Program version of this BMP allows users to apply either cover crops or continuous no till on the same acre of land. Selecting the radio button tells VAST to calculate continuous no till one way or the other.

Please select the scenarios you would like to copy BMPs from: This option lists each of the BMP pages and allows a user to select a scenario to copy. The pull down menu shows the user's private scenarios as well as any public scenarios. Users may choose to not select any scenarios, in which case the scenario will be starting with no BMPs. Alternatively, a user may select the latest progress scenario for each of the BMP pages, which will allow the user to begin with BMPs for the current condition. The user may also select different scenarios for different BMP pages. For example, the user may select a scenario created by their agriculture colleague and the most recent progress scenario for urban. This way, the user may focus on updating the planning for the urban sector while depending on their agriculture colleague to have completed the planning for agriculture.

Share this scenario: Checking this box causes a scenario to be visible on the Public Scenarios list on the Scenarios page. Since users may return to this page at any time, users may choose to select this box later. Users should only make scenarios public that they wish to share with others since the list is populated with all public scenarios in the state.

Once the information is completed on the page, click the Add button. VAST refreshes with tabs across the top of the page. The user is looking at the Urban Page. Any tab may be selected at this point.

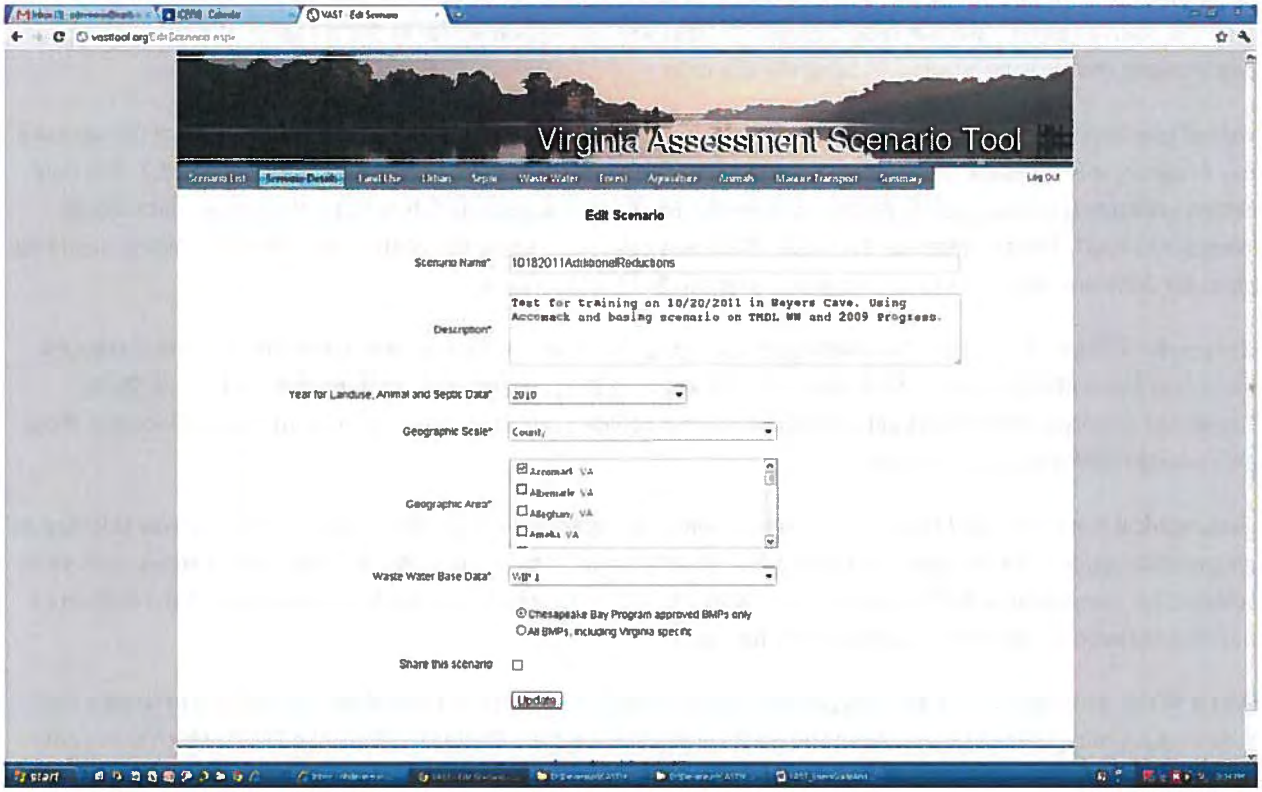


Figure 5: Add new scenario page

LAND USE

Users have the option of entering their own land use into VAST. This information will be used by the Commonwealth of Virginia to determine the variance from the Chesapeake Bay Program's land use. While all BMP calculations will be performed on the Chesapeake Bay Program's land use, it will be helpful to have a record of the actual land use in a jurisdiction. The data entered on this page may be downloaded from the Summary page.

Users are first asked to select a land use category. There are three categories: Generalized, Specific, and Chesapeake Bay. The list of land uses in each of these three categories is in Appendix Nine. Users may select Generalized for one sector, and Specific for another. For example, users may select agriculture, which is a generalized land use category, and also select regulated impervious urban, which is a specific land use category. A user may not overlap such as selecting both agriculture (generalized) as well as crop (specific). As with the BMP input screens, users also select the geographic scale and area. Users enter the actual acres. There is a notes field which users may choose to use as well. All of this information populates a table at the bottom of the screen, which may be downloaded from a link found at the bottom of the Summary Page.

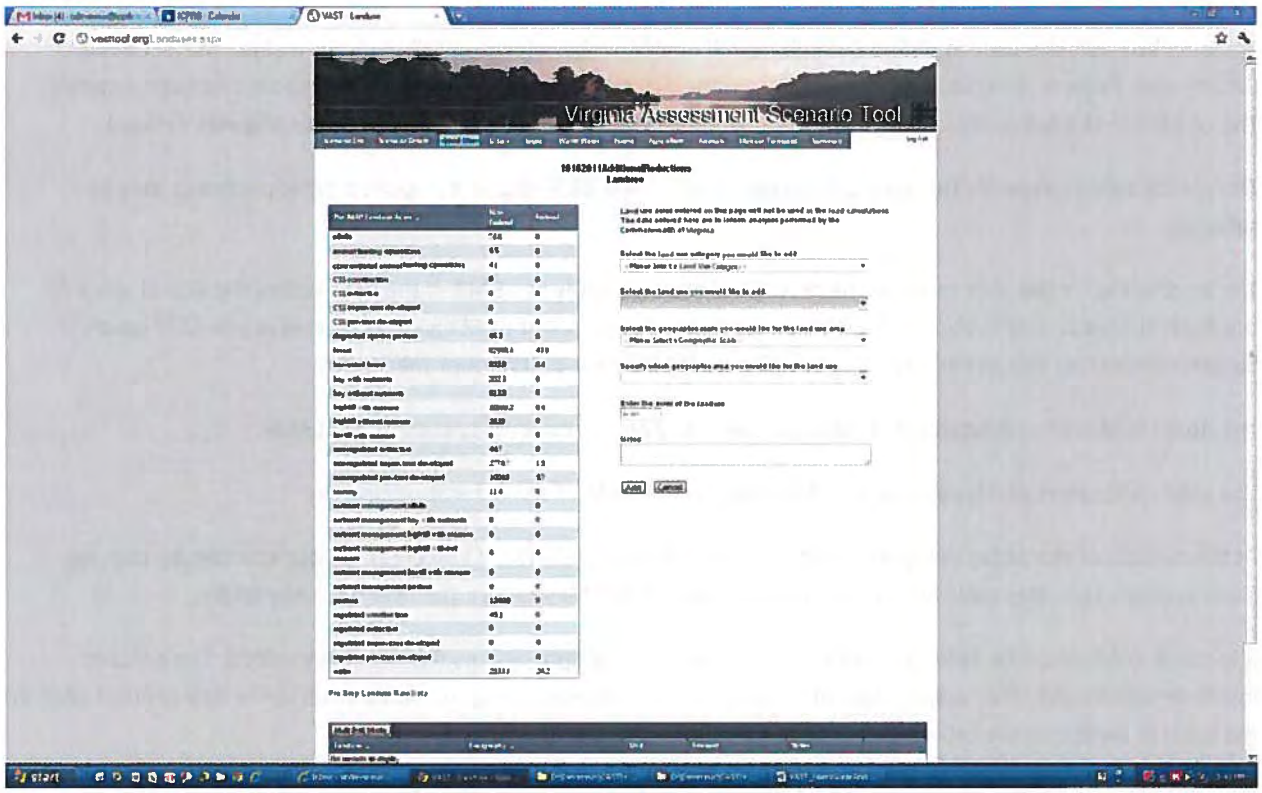


Figure 6: Land use page

URBAN BMP PAGE

The Urban BMP page shows the pre-BMP land use in the upper left portion of the screen. The land use is divided into non-federal and federal acres. State-owned lands are included in the non-federal category. The Chesapeake Bay Program land uses include: regulated construction, regulated extractive, nonregulated extractive, regulated impervious developed, nonregulated impervious developed, regulated pervious developed, nonregulated pervious developed, CSS pervious developed, CSS impervious developed, CSS extractive, and CSS construction. Definitions of these land uses may be found in Appendix Two . The data summarized in the table may be downloaded by clicking the link underneath the table. The downloaded data will be at the land-river segment scale.

Urban BMPs are listed alphabetically in the drop down list. Users should select the BMP they would like to add. BMPs may be added in any order; calculations are always made in the same order, regardless of the order in which the user added the BMP.

The second box will become populated with the land uses on which the BMP is eligible to be applied. The user may select multiple land uses.

The next box asks the user to define the geographic scale for the selected BMP. Options include State, County, County with Federal Split, Soil and Water Conservation District, Planning District Commission, and Segmentshed. The options in the Geographic Area box will be limited to the area selected when the scenario was defined.

The user is asked to specify the geographic area to which the BMP should be applied. Multiple boxes may be selected.

The next box is for the user to enter the percent of acres to apply the BMP. If the user knows the actual acres for the BMP, then it is simple to calculate the percent as: actual acres of BMP divided by acres in pre-BMP land use. Stream restoration and street sweeping are all entered in linear units rather than acres.

The notes field is an unlimited text field for the user to enter comments specific to that BMP.

The user must select add for the BMP to be added to the table of BMPs for the scenario.

At the bottom of the page, the table shows the BMPs in your scenario. If you created your scenario by copying from another, then this table already will be populated with BMPs before the user adds any BMPs.

It is not possible to add a BMP on a land use in the same geographical area if it is already added. The percent implementation and other associated information may be updated using the edit button in the row for that BMP in the table or switching the table into multi-edit mode.

In the BMP table, BMPs may be edited by selecting edit. Then the drop down boxes and field above will be populated with the selections for that BMP. All information about the BMP may be updated. A BMP may be deleted individually be selecting the delete option in the row of the BMP. To delete multiple BMPs, highlight the rows by holding down the Ctrl key and clicking on the BMPs. Then use the Delete Selected Items button at the bottom of the page to delete all of the highlighted BMPs.

The entire table of BMPs may be edited when the user selects multi-edit mode. Users may change the percent implementation for each BMP and land use and edit the notes field. Users may move from one editable cell in the table to another by using the mouse or tab key. When edits are complete, users may select Update All, or Cancel if they do not wish to save the edits. The table is then returned to single-edit mode.

BMPs are automatically sorted by the fields: BMP, land use, and geographic area. To change the sorting, you must first remove the sorting already applied to those fields by clicking once to reverse sorting and another time to remove the sorting. The user may then select any field to sort.

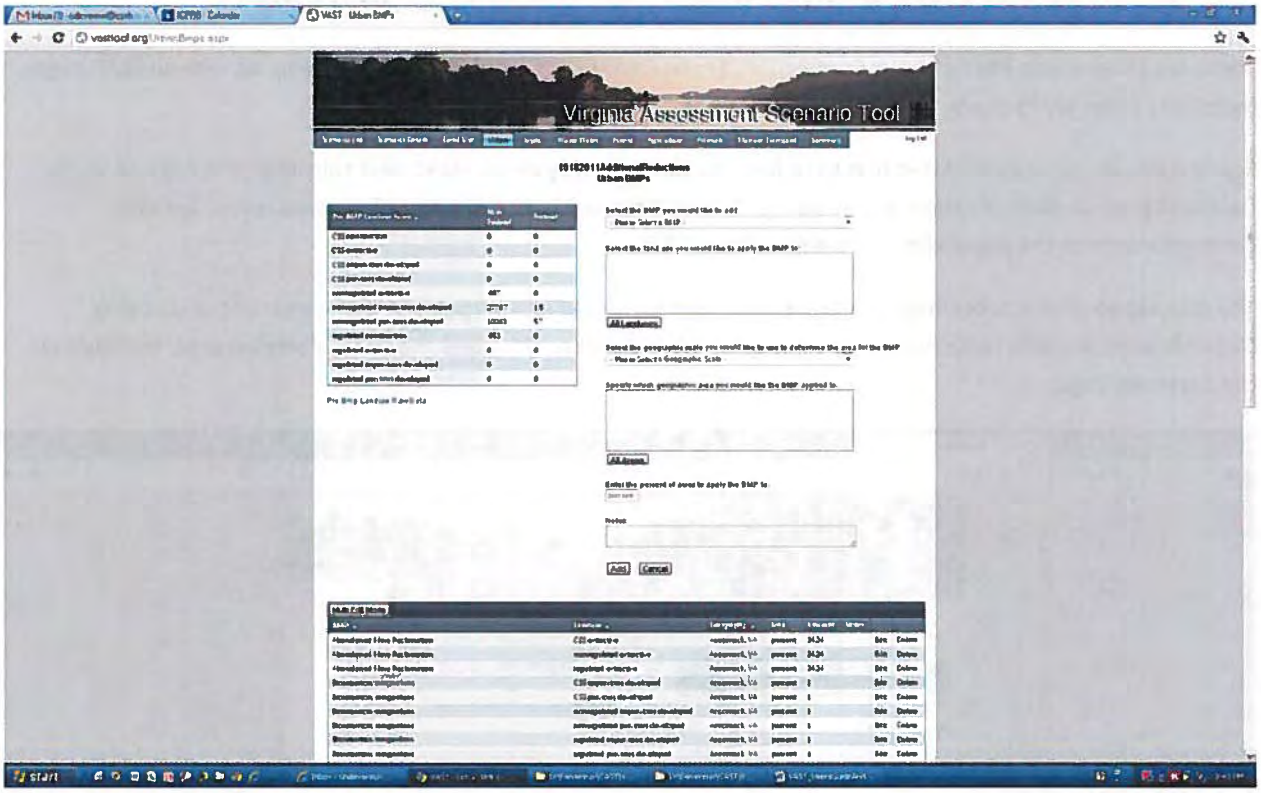


Figure 7: Urban BMP page

SEPTIC BMP PAGE

The septic BMP page is similar to the Urban BMP page. Instead of land uses and acres in the pre-BMP table, there is the septic zone and the number of systems. The user enters BMPs as the percent of systems.

There are three septic BMPs: Septic Connection, Septic Denitrification, and Septic Pumping. As with all BMP pages, users may enter BMPs in any order desired. VAST calculates these in a set order.

Septic connections are calculated first to reduce the number of systems. VAST next calculates the edge of septic field load prior to denitrification and pumping. This is calculated as the number of systems remaining after connections times the population per system times 8.916.

The population data is taken from the U.S. Census and projected or interpolated to the year of the scenario. Denitrification is a 50% reduction and pumping is a 5% reduction. This gives the edge of stream load, available on the Summary Page.

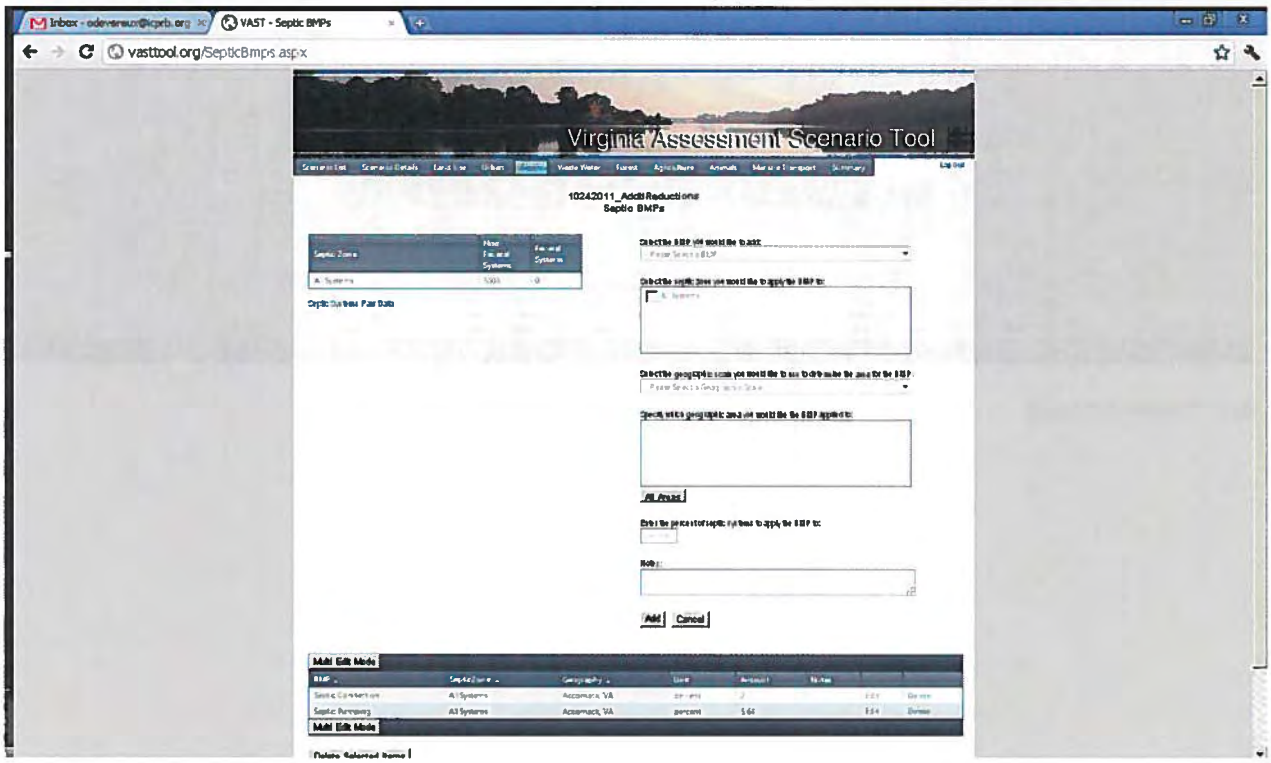
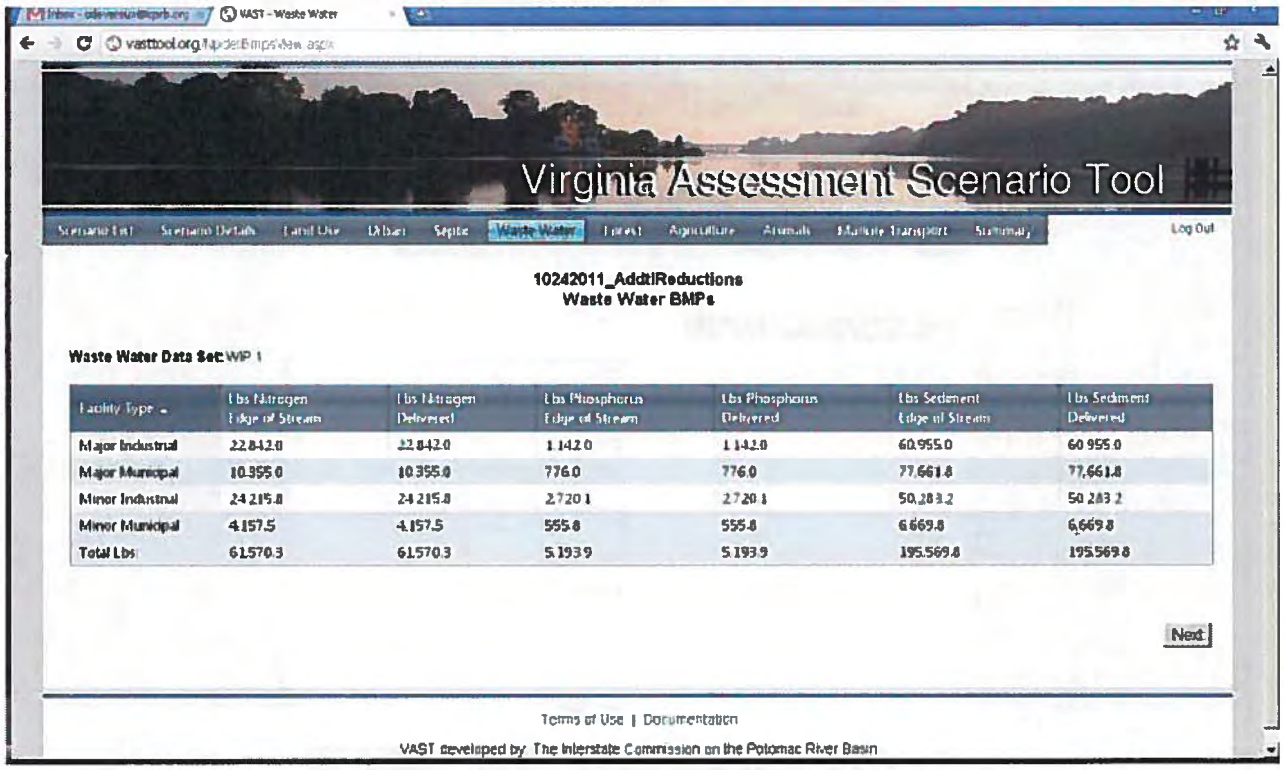


Figure 8: Septic BMP page

WASTE WATER PAGE

On this page, instead of a table of land uses, the table shows the load from facilities by types major and minor, industrial and municipal. There is the same information on the Summary page.



Facility Type	Lbs Nitrogen Edge of Stream	Lbs Nitrogen Delivered	Lbs Phosphorus Edge of Stream	Lbs Phosphorus Delivered	Lbs Sediment Edge of Stream	Lbs Sediment Delivered
Major Industrial	22,842.0	22,842.0	1,142.0	1,142.0	60,955.0	60,955.0
Major Municipal	10,355.0	10,355.0	776.0	776.0	77,661.8	77,661.8
Minor Industrial	24,215.8	24,215.8	2,720.1	2,720.1	50,283.2	50,283.2
Minor Municipal	4,157.5	4,157.5	555.8	555.8	6,669.8	6,669.8
Total Lbs	61,570.3	61,570.3	5,193.9	5,193.9	195,569.8	195,569.8

Figure 9: Waste water page

FOREST BMP PAGE

The forest BMP page is similar to the Urban BMP page. The pre-BMP land use table shows the two forest land uses: forest and harvested forest broken into federal and non-federal categories. With forests, there are only Dirt and Gravel Road BMPs and the Forest Harvesting Practices BMP available. There is generally a low load associated with forest land.

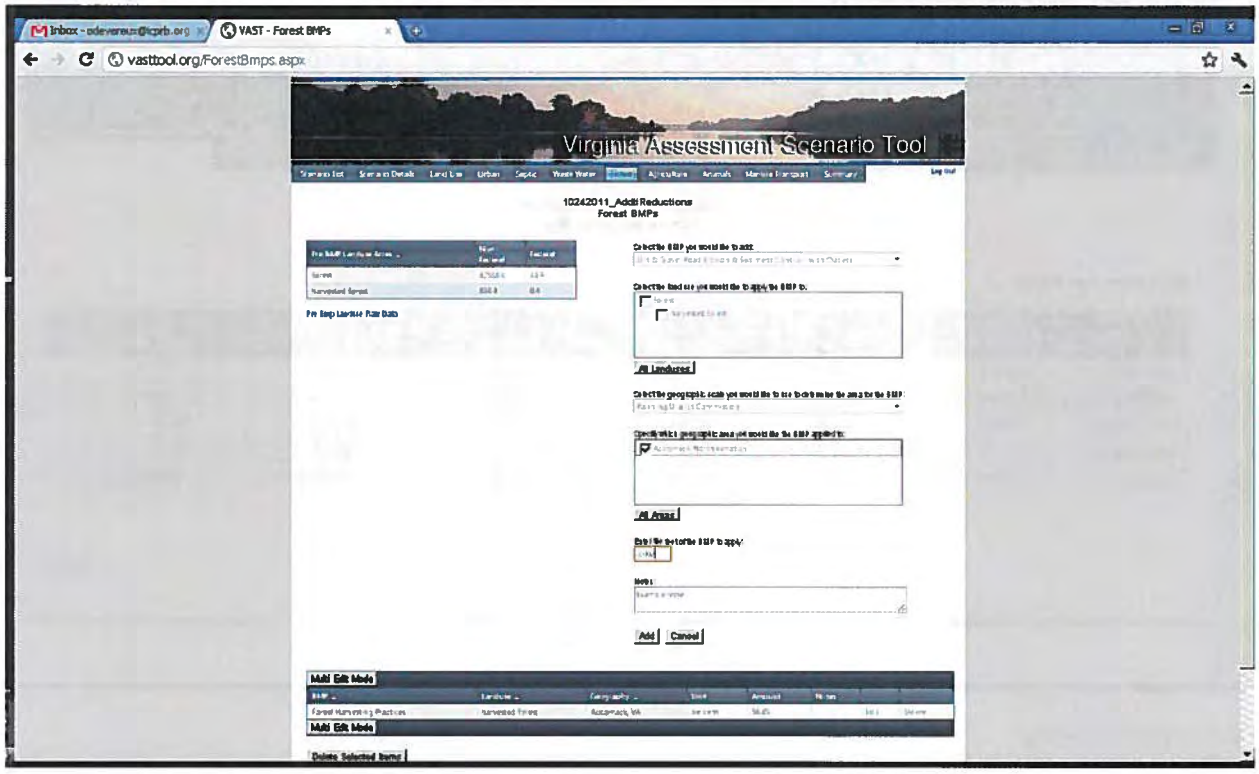


Figure 10: Forest BMP page

AGRICULTURAL BMP PAGE

The Agriculture BMP page is similar to the Urban BMP page. The page shows the pre-BMP land use in the upper left portion of the screen. The land use is divided into non-federal and federal acres. State-owned lands are included in the non-federal category. There are 17 agricultural land uses. Definitions of these land uses may be found in Appendix Two . The data summarized in the table may be downloaded by clicking the link underneath the table. The downloaded data will be at the land-river segment scale.

BMPs are listed alphabetically in the drop down list. Users should select the BMP they would like to add. BMPs may be added in any order; calculations are always made in the same order, regardless of the order in which the user added the BMP.

The second box will become populated with the land uses on which the BMP is eligible to be applied. The user may select multiple land uses.

The next box asks the user to define the geographic scale for the selected BMP. Options include State, County, County with Federal Split, Soil and Water Conservation District, and Segmentshed. The options in the Geographic Area box will be limited to the area selected when the scenario was defined.

The user is asked to specify the geographic area to which the BMP should be applied. Multiple boxes may be selected.

The next box is for the user to enter the percent of acres to apply the BMP. If the user knows the actual acres for the BMP, then it is simple to calculate the percent as: actual acres of BMP divided by the acres in pre-BMP land use. Stream restoration and dirt and gravel roads are all entered in linear units rather than acres.

The notes field is an unlimited text field for the user to enter comments specific to that BMP.

The user must select add for the BMP to be added to the table of BMPs for the scenario.

At the bottom of the page, the table shows the BMPs in your scenario. If you created your scenario by copying from another, then this table already will be populated with BMPs before the user adds any BMPs.

It is not possible to add a BMP on a land use in the same geographical area if it is already added. The percent implementation and other associated information may be updated using the edit button in the row for that BMP in the table or switching the table into multi-edit mode.

In the BMP table, BMPs may be edited by selecting edit. Then the drop down boxes and field above will be populated with the selections for that BMP. All information about the BMP may be updated. A BMP may be deleted individually be selecting the delete option in the row of the BMP. To delete multiple BMPs, highlight the rows by holding down the Ctrl key and clicking on the BMPs. Then use the Delete Selected Items button at the bottom of the page to delete all of the highlighted BMPs.

The entire table of BMPs may be edited when the user selects multi-edit mode. Users may change the percent implementation for each BMP and land use and edit the notes field. Users may move from one editable cell in the table to another by using the mouse or tab key. When edits are complete, users may select Update All, or Cancel if they do not wish to save the edits. The table is then returned to single-edit mode.

BMPs are automatically sorted by the fields BMP, land use, and geographic area. To change the sorting, you must first remove the sorting already applied to those fields by clicking once to reverse sorting and another time to remove the sorting. The user may then select any field to sort.

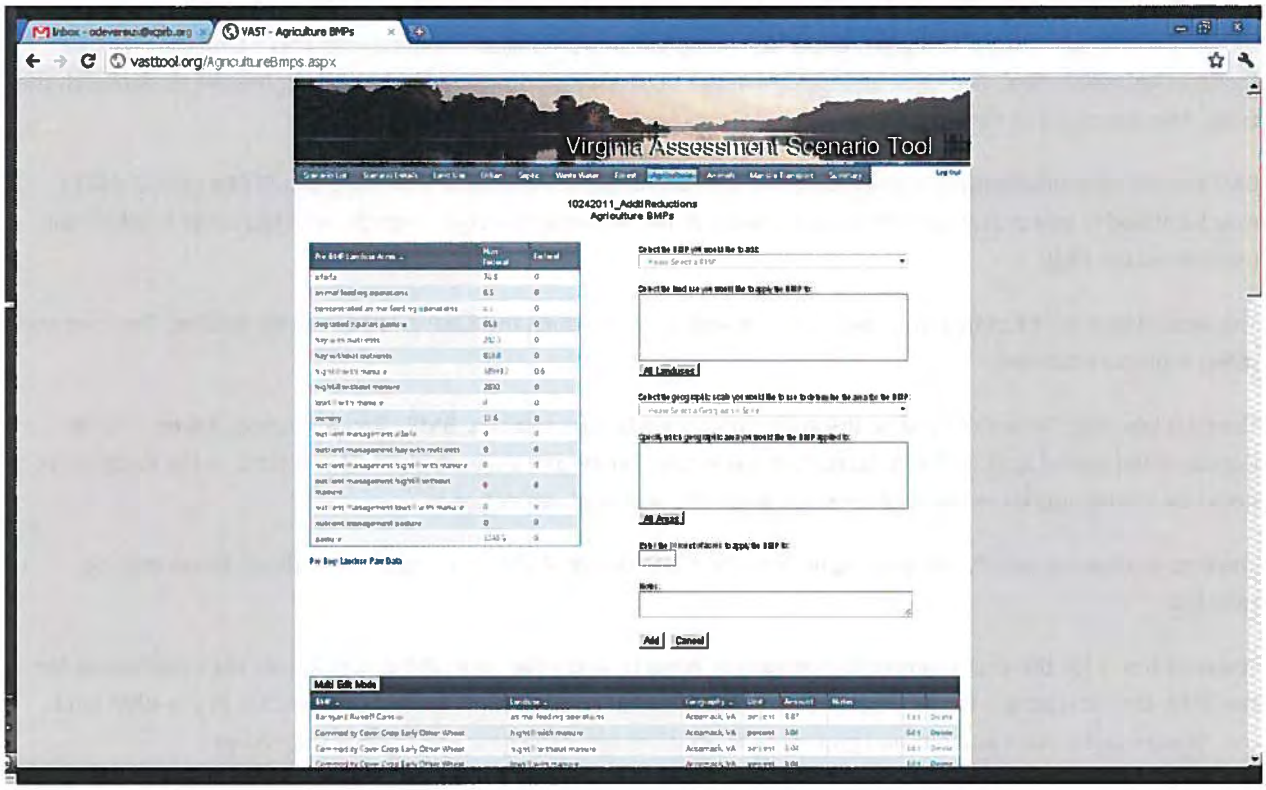


Figure 11: Agricultural BMP page

ANIMAL BMP PAGE

Animal BMPs are BMPs that are applied to a number of animals, as opposed to acres, for example. These BMPs affect the concentration of nutrients in animal manure or the amount of manure stored versus lost. Manure that is stored is applied to cropland. Manure that is lost is applied to the land uses AFO or CFO. Since VAST works by calculating the load for each land use, these BMPs are estimates of the edge of stream and delivered loads from the Chesapeake Bay Program Watershed Model (Appendix Ten). All of the other BMPs in VAST are calculated identically to the way in which the Chesapeake Bay Program's Scenario Builder and Watershed Model calculate the BMPs.

The pre-BMP source table shows the number of animals (not animal units) in AFOs and CAFOS. The animal types are all of the animals recognized by the Chesapeake Bay Program and were originally taken from the categories in the Census conducted every five years by the National Agricultural Statistics Service (NASS) in years ending in two and seven. The link below the table allows the data to be downloaded. The data are at the county scale, which is the finest scale available from NASS.

There are eight animal BMPs:

1. Animal Waste Management Systems
2. Biofilters
3. Dairy Precision Feeding and/or Forage Management
4. Lagoon Covers
5. Mortality Composters
6. Poultry Litter Treatment (alum, for example)
7. Poultry Phytase
8. Swine Phytase

Two other BMPs involve animals, but are applied to acres as opposed to the number of animals. These two BMPs, Barnyard Runoff Control and Loafing Lot Management are found on the Agricultural BMP page.

Animal BMPs may be applied to individual animal types or groups of animals. The pull down list includes animal groups at the top. The categories are self-explanatory except for livestock. Livestock includes all animal types except for poultry.

Users are asked to select AFO or CAFO animals or both. Since the animal data is only available at the county scale, users may only select the geographical scale of county. More than one county may be selected at a time. The BMP is applied to the percent of animals.

For swine and poultry phytase, users may specify the phosphorus reduction. The default reduction for swine is 0% and for poultry is 16%. Use the notes box to justify how the phosphorus reduction was determined if the default is not used. The Chesapeake Bay Program asks that there be data to support the reduction values.

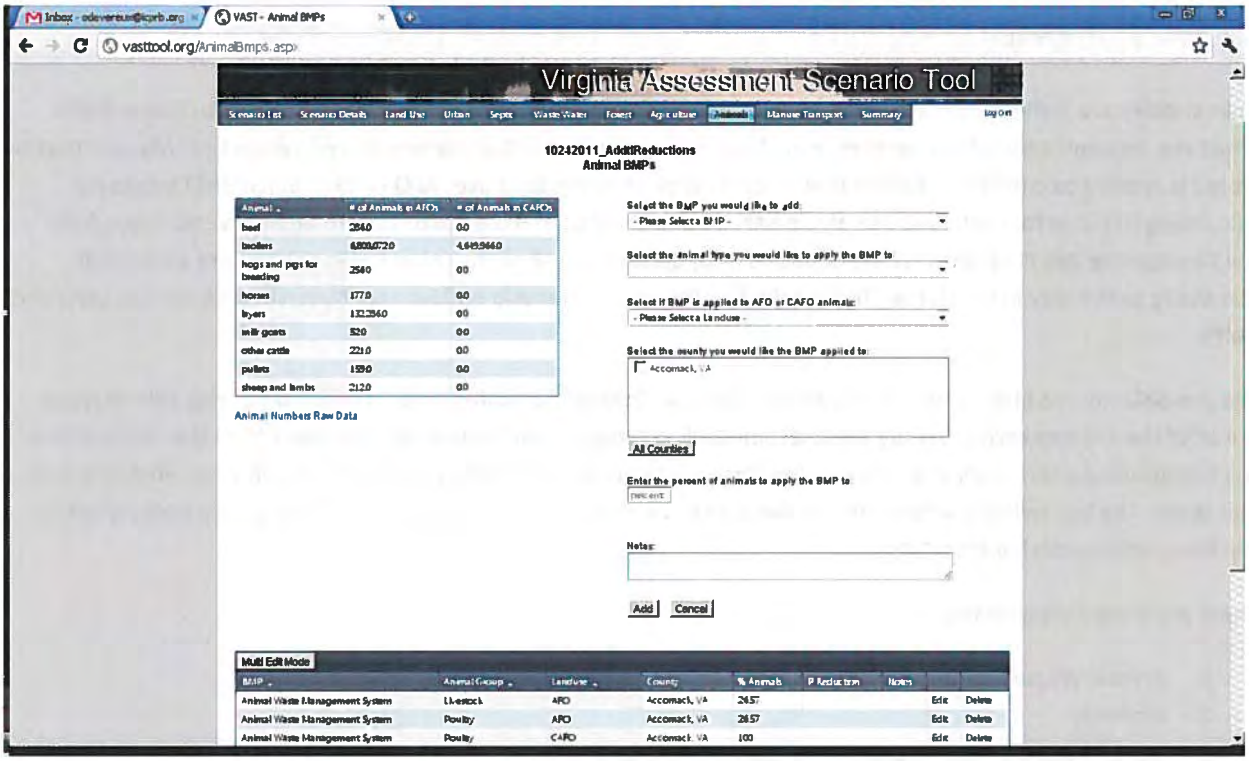


Figure 12: Animal BMP page

MANURE TRANSPORT PAGE

This page is similar to the Animal BMP page in that it shows the animal types. Instead of showing the number of animals on AFOs or CAFOs, it shows the tons of manure. Users may download this information at the county scale by clicking the link under the table.

The user must select the source and destination counties. If *out of watershed* is selected, then the manure is removed as a source of pollutants in the Chesapeake Bay. Manure transported to the pelletizing plant on the Eastern Shore is considered out of watershed. The list of animal types is the same list as is on the Animal BMP page. The groups of animals are listed first, followed by the individual animal type. Transported manure is entered in terms of tons. The Chesapeake Bay Program performs some quality assurance checks on this field so the number must be justifiable. The notes field is a good place to justify the amount of manure transported.

By removing a certain portion of manure, there is not necessarily a decrease in the load to that land use because fertilizer may be applied to make up the difference. Scenario Builder has an algorithm to calculate how much nutrients are required by crops, and where manure is unavailable, then fertilizer is used. Thus, there may not be any decrease in the load. Manure transport does decrease loads where there is manure in excess of crop need. In these cases, manure is spread on land greater than the crop need. Removing this manure does result in a decrease in loads. Because VAST is not designed to calculate crop need, but works solely on the basis of loads per land use, then manure transport is simply tracked in the tool, but not calculated as a decrease in load.

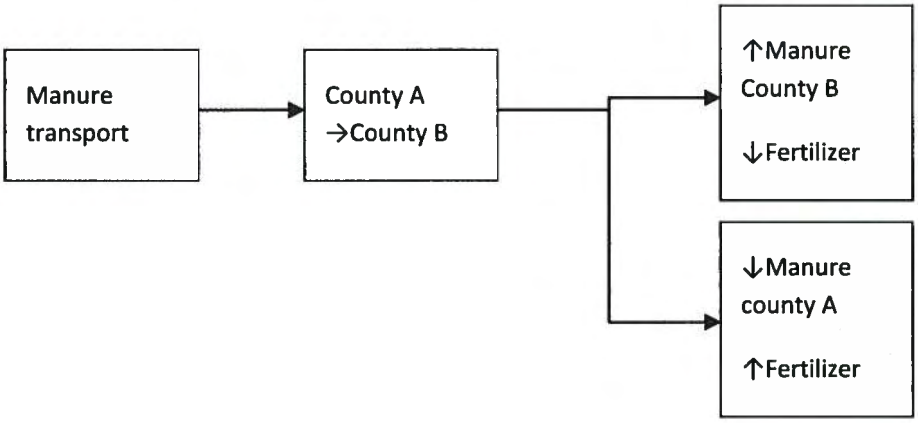


Figure 13: Effects of manure transport

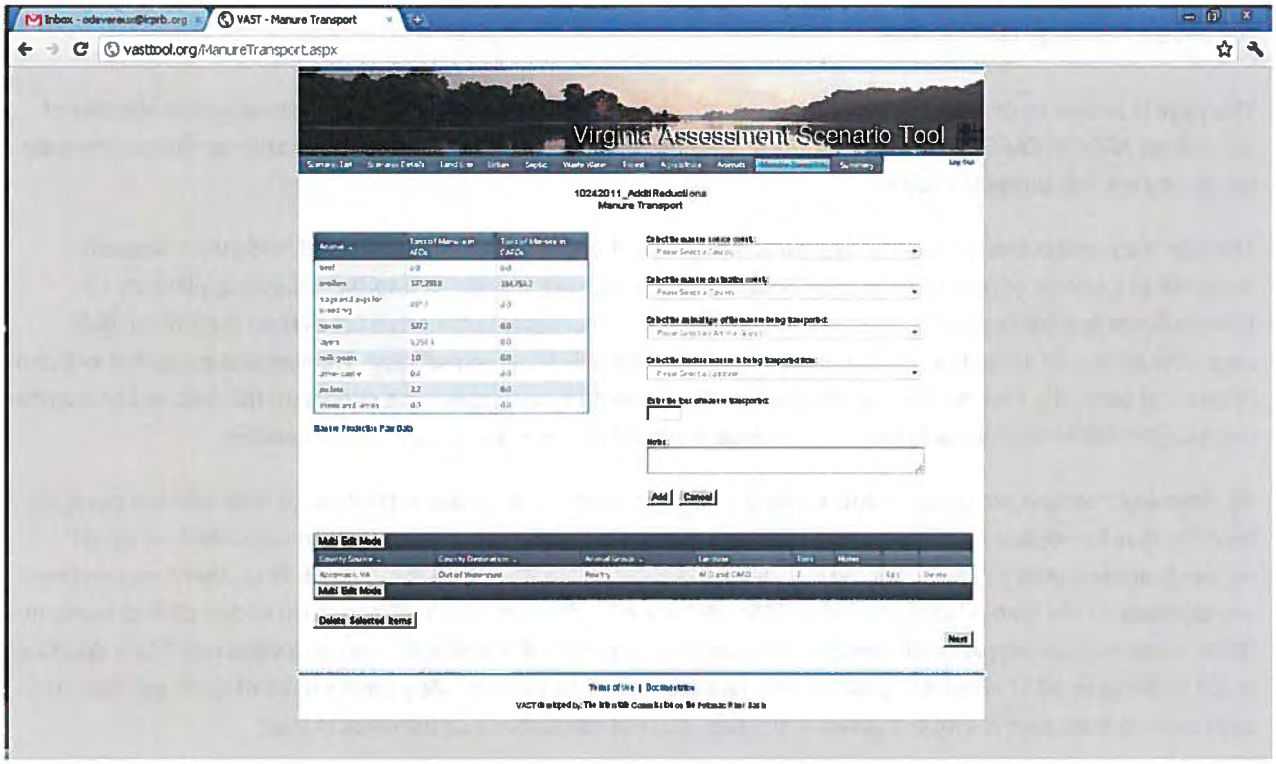


Figure 14: Manure transport page

SUMMARY

The summary page shows the results of your scenario. There are five tables, two of which may be expanded for more detailed information. Each of these five tables may be downloaded by clicking the download link underneath the table. The five tables are:

1. Land use acres: Shows the pre and post-BMP acres for each sector and land use. To view the specific land uses within each sector, click on the arrow in the leftmost portion of the table.
2. Land use loads: Shows the pounds of nitrogen, phosphorus and sediment at edge of stream and delivered to the Chesapeake Bay for each sector and land use. To view the specific land uses within each sector, click on the arrow in the leftmost portion of the table.
3. Septic systems: Shows the number of pre and post-BMP septic systems for each septic zone.
4. Septic loads: Shows the pounds of nitrogen at edge of stream and delivered to the Chesapeake Bay for each septic zone.
5. Waste water loads: Shows the pounds of nitrogen, phosphorus and sediment at edge of stream and delivered to the Chesapeake Bay for the facility types of major and minor municipal and industrial.

There are also four links at the bottom of the screen to download files. All downloaded files are in .txt format. The files are downloaded in a zipped format. Zipped files may be opened using the extract wizard, usually available on the menu that pops up when the file name is right-clicked. Once extracted, files in .txt format may be opened in Excel by right-clicking on the name and selecting open with excel. These files are discussed in the following sections.

SCENARIO BUILDER FILES

This link downloads six files in a zipped format that can be used as direct inputs to the Chesapeake Bay Program's Scenario Builder. Since they may be used as direct inputs, the Chesapeake Bay Program is alleviated from manipulating the data, which reduces the possibility of human error. The files are:

1. Animal Feed BMPs: Shows the percent implementation of the animal feed BMPs by FIPS, animal group, and land use group. The percent implemented is on the number of animals so the fraction implementation is the percent implementation. The default or user-specified nitrogen and phosphorus reduction are also specified for each of these BMPs. The FIPS is a county code. A lookup table of FIPS code and county names is in Appendix Seven .
2. Animal Waste Management System BMPs: Shows the percent implementation of the animal waste management system BMP by FIPS, animal group, and land use group. The FIPS is a county code. A lookup table of FIPS code and county names is in Appendix Seven .
3. Manure Transport: Shows the manure that was transported. The fields include: FIPS, FIPS from, FIPS to, animal group, land use group, and tons. The FIPS is a county code. A lookup table of FIPS code and county names is in Appendix Seven .
4. Waste Water Industrial: Shows the type of facility, the river and land segment in which the facility is located, the NPDES permit number, month, day, flow, ammonia, nitrate or nitrate, total organic nitrogen, total nitrogen, phosphate, total organic phosphorus, total phosphorus, and total suspended sediment.
5. Waste Water Municipal: Shows the type of facility, the river and land segment in which the facility is located, the NPDES permit number, month, day, flow, ammonia, nitrate or nitrate, total organic nitrogen, total nitrogen, phosphate, total organic phosphorus, total phosphorus, and total suspended sediment.

6. Regular BMPs: Shows the amount and unit for BMPS by land-river segment. It also shows the land use on which the BMP is applied.

BMPS SUBMITTED VS. CREDITED

There are three files available in this link: Land Use BMPs, Waste Water BMPs, and Septic BMPs. In these files, the BMPs are listed along with the notes section that is tied to each BMP. The user may use the information in these files to determine if all of the BMPs submitted on the BMP pages were credited. It is possible that some BMPs were not credited because BMPs were submitted on greater than 100% of the acres of a particular land use, for example. The table contains the following fields:

Field Name	Data
BMP Name	Name of BMP user selected
Amount of BMP Submitted	Percent implementation specified by the user
Submitted Unit	Unit, usually percent of acres and sometimes a linear unit such as feet.
Geographic Area	User selected such as county
Land use or Septic Zone	Type specified by the user.
Amount of BMP Submitted Calculated	Actual acres or number of systems or animals to which the BMP will be applied.
Amount of BMP Submitted with 2007 Backout Calculated	Amount of the BMP that is greater than what was submitted in2007 (This is only relevant for some land use change BMPs. This is what the user will be given credit for. It is assumed that the land use projection to 2010 accounted for some increase in land use types (Appendix One – BMP Calculations).
Amount of BMP Credited	Amount of BMP in terms of acres, feet, or septic units that the scenario is able to grant credit.
Amount of BMP Not Credited	This is calculated for the user by subtracting Amount of BMP Credited from the field named Amount of BMP Submitted Calculated. This field allows the user to verify that all BMPs

	submitted were fully credited.
Calculated/credited unit	Units of BMP credited (aces, feet, septic systems)
Notes	User-entered notes associated with each BMP

ESTIMATED LOADS

There are three files available in this link: Land Use Loads, Waste Water Loads, and Septic Loads. These files show the detailed information available in the tables on the screen. The data in these tables are broken into land-river segments. There are also fields for federal and county, so the data may be summed to those categories. Other fields include land use or septic zone, acres or systems, and each of the pollutant loads for edge of stream and delivered to the Chesapeake Bay. The waste water file includes the NPDES permit, outfall number, facility name, land and river segment, if the facility is federal along with the pollutant loads for nitrogen, phosphorus and sediment.

USER-SUBMITTED LAND USE DATA

This table is identical to the user's input on the land use page.

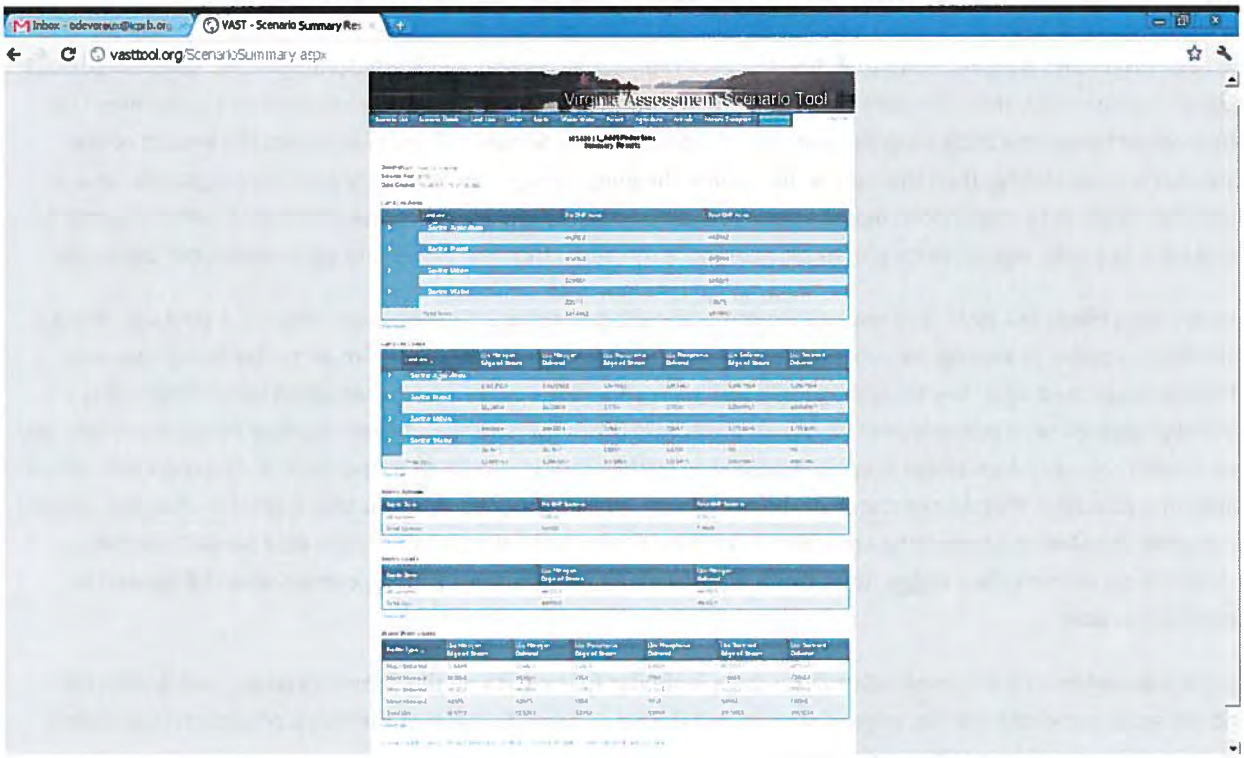


Figure 15: Summary page

COMPARE SCENARIOS

VAST was designed to assess if a particular set of BMPs would reduce loads to an allowable amount. In order to assess this, a user needs to compare various scenarios. VAST will compare among three scenarios on the Compare Scenarios page. The user must select the geographic scale and area and then specify each of the three scenarios to compare.

Users must be careful in which scenarios they select for comparison. Ideally, users will compare scenarios that are of identical geographic areas. If any of the scenarios selected are not for the total area, then VAST uses loads that have no BMPs. For example, assume a user selects the following:

Geographic Scale: County
Geographic Area: Accomack County
Scenario 1: 2009 Progress
Scenario 2: MyScenarioAccomackFederal
Scenario 3: MyScenarioAccomackAg

The 2009 Progress scenario includes the entire state and has data for all of Accomack County. The data shown will be the Accomack County data. The MyScenarioAccomackFederal is a scenario created by the user that has BMPs on only the Federal portion of the county. VAST assigns the load for the non-federal portion of the county as if there were no BMPs. The MyScenarioAccomackAg only has BMPs for the agriculture sector. The load for the other sectors is the load without any BMPs. This is a false comparison and will not be useful to the user.

The user would find it more useful to define the geographic scale as county with federal split and select Accomack Federal. The user may then compare the 2009 Progress to the MyScenarioAccomackFederal and determine the difference between the 2009 progress and their proposed BMPs. Should the user like to see the impact of the MyScenarioAccomackAg, then the user would define the geographic scale as County and the geographic area as Accomack. Then the comparison could be between 2009 Progress and MyScenarioAccomackAg. When examining the results, the user should be careful to only compare the agriculture land uses and agriculture land use loads.

Conservation tillage is a BMP that may create some unexpected results. Conservation tillage is a land use change BMP that is applied in varying amounts (Appendix Six).The Chesapeake Bay Program currently recognizes two different tillage land uses: low till and high till. Low till is generally equated as conservation till and high till is generally equated with conventional till. When a scenario is run through the Chesapeake Bay Program models and also in VAST, conservation tillage is applied according to the amount indicated in the table in Appendix Six . When comparing scenarios that do not match in terms of geographical area, the scenario that is smaller than the defined geographic area has the remaining area filled in with no BMPs. Since the definition of a true no BMP scenario includes some conservation tillage, then the comparison will include areas with no conservation tillage and is incommensurable.

The data available on the Compare Scenarios page is similar to the data on the Summary page. Tables with the land use acres by sector and the edge of stream and delivered loads for each of the three pollutants is provided. The following comparison tables are available:

1. Land use acres
2. Nitrogen land use loads
3. Phosphorus land use loads
4. Sediment land use loads

5. Septic systems
6. Septic loads

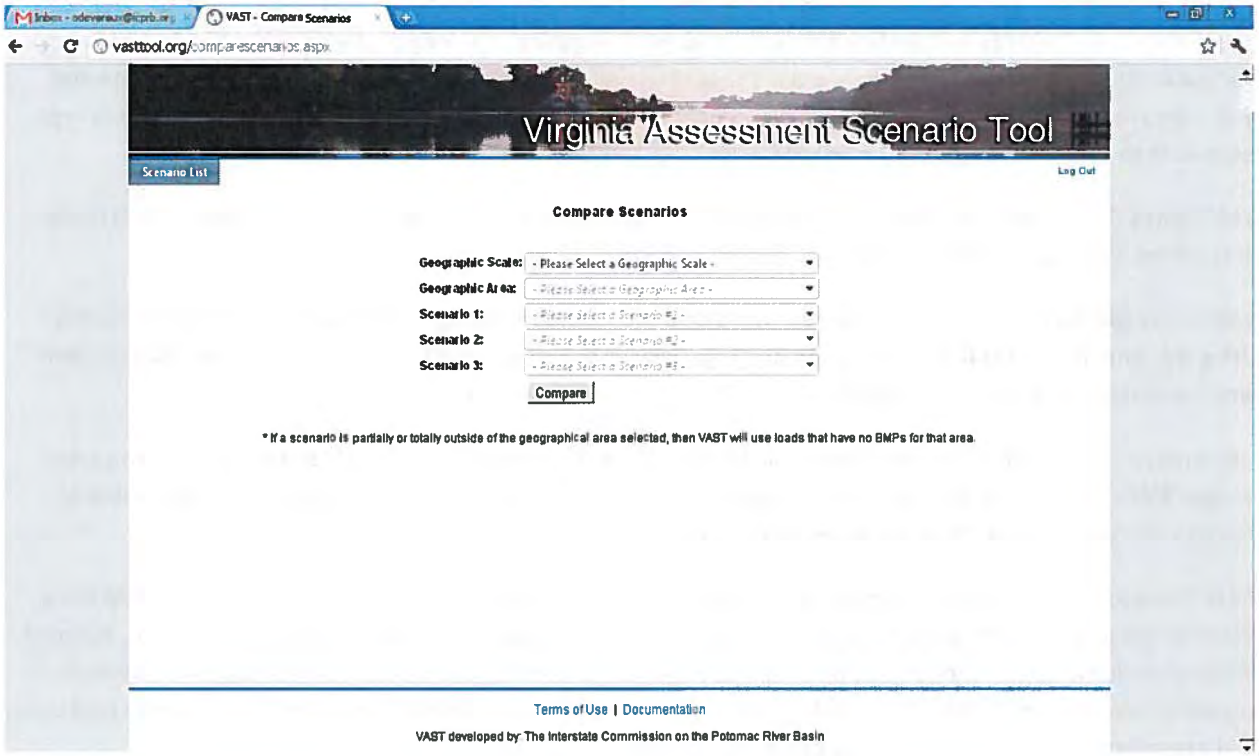


Figure 16: Compare Scenarios page

SUMMARY

VAST is designed as a planning tool to assess how to reduce nitrogen, phosphorus, and sediment loads. VAST can help determine a strategy for meeting a reduction target. Comparisons among scenarios are useful for assessing if particular scenarios meet a target. By viewing the land use loads, users can determine if the load allocation was met. Users must be careful to make sure their comparisons are valid, such as comparing allocations for delivered loads with the scenario results for delivered loads.

VAST stores data associated with each BMP as well as showing the load for each sector and landuse. With these data tables, VAST can serve as a data management system.

VAST users can determine changes in acres from BMPs that caused land use conversions, such as forest buffers. Using the land use acres table on the summary page, which shows the pre-BMP land use acres and the post-BMP land use acres, can provide a ready reference for the total acres by sector.

Users may need to perform analysis on the amount of nitrogen delivered from various septic zones given septic system BMPs. It is easy to view the septic systems and loads tables on the summary page to see the number of systems and nitrogen load from the three septic zones.

All of this information will help to create useful plans for BMP implementation. For those users who would like a better understanding of how the calculations are performed and insight into maximizing load reductions, detailed information is available in Appendix One – BMP Calculations . Generally users should target implementation to segments where the pre-BMP load is highest and the delivery to Bay is highest. By targeting high-loading land uses and geographic areas, they are treating the most pollution.

APPENDICES

APPENDIX ONE – BMP CALCULATIONS

The purpose of this Appendix is to provide an in-depth understanding of how BMPs are calculated. Understanding how BMPs are calculated will help the user maximize their load reductions. The following topics are addressed in the sections below: BMP types, BMP groups and sequence of calculation, overlapping and mutually exclusive BMPs, calculation steps with example calculations, and tips for maximizing load reductions.

BMP TYPES

Some BMPs change the land use while other BMPs use an effectiveness value. Yet another type reduces the load delivered or the application of nutrients. Each of these is described in turn.

Effectiveness values: An effectiveness value is a percentage of a pollutant that is removed when the BMP is applied. For example, Dry Extended Detention Ponds remove 20% of nitrogen that would have been delivered without the Detention Ponds. When a pass through value for a BMP is referred to, it is simply 100% minus the effectiveness value. In this case, the pass through value for Dry Extended Detention Ponds is 80%.

Land use change: Land use change BMPs simply change one land use to another. For example, the BMP Urban Growth Reduction changes an urban land use to agricultural and forest land in the proportion that agricultural and forest land exists in the geographical area. Another example is the BMP Forest Buffers that converts agricultural land uses to a forest land use.

Land use change with effectiveness values: Some BMPs work as both land use change and effectiveness value BMPs. In these cases, the land use change is calculated first, and then an effectiveness value is applied to an additional number of acres of the original land use. The land use change BMPs that also have an effectiveness value are grass buffers, forest buffers, enhanced nutrient management, decision agriculture, and wetland restoration. It is assumed that the presence of these BMPs reduces the amount of nutrients delivered from upland acres as water and nutrients move through the soil matrix. Figure 17 illustrates an example of a forest buffer applied to agricultural land. An agricultural forest buffer is applied to 10 acres, converting those 10 acres of agricultural land to forest land. There is a nitrogen efficiency that treats 4 times the acres converted. If this were illustrating phosphorus or sediment, only 2 times the acres are treated. When a BMP is put on a specific land use, the benefit of the effectiveness value is applied to all land uses within that group. For example, if put on pasture, then the benefit is to all agricultural land uses.

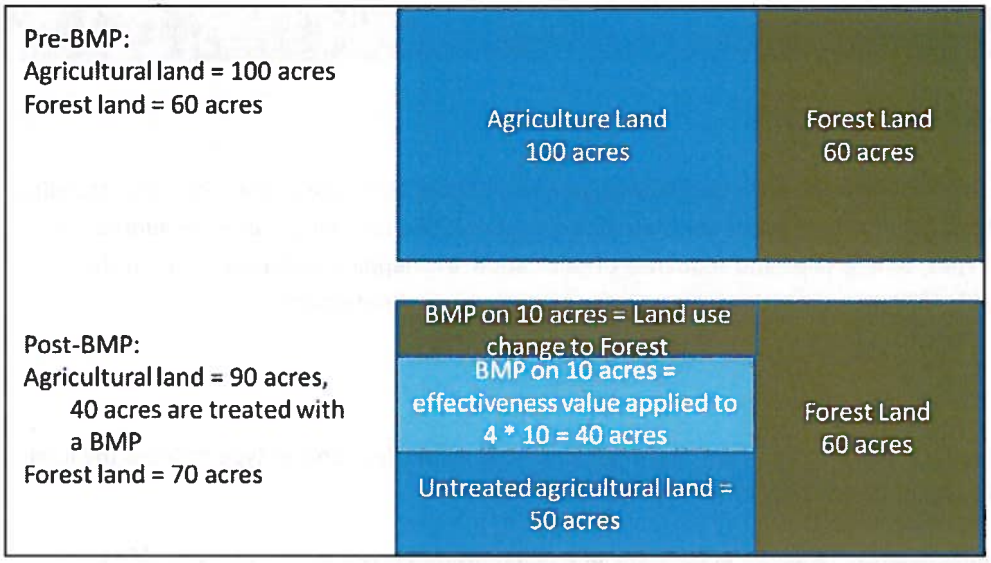


Figure 17: Land use change with effectiveness values.

Load reduction: There are a few special BMPs that do not fit among the three categories of land use change, effectiveness, or land use and effectiveness BMPs. These are load reduction BMPs and include stream restoration, dirt and gravel roads, street sweeping, animal BMPs (e.g., Poultry Phytase), and manure transport. These are modeled in the Chesapeake Bay Program's Scenario Builder and the Watershed Model in various ways. Some are modeled as a decrease in the concentration of nutrients in various animals' manure. In other cases, the crop application rate or plant uptake is varied.

Load reduction BMPs are implemented in VAST differently than in the Chesapeake Bay Program's tool Scenario Builder. In VAST, all BMPs are modeled as a change in the load per land use. Since the application and load reduction BMPs take effect earlier in the Scenario Builder process than the distribution of loads to land uses, these BMPs are necessarily estimated in VAST. In VAST, these BMPs are calculated differently (**Error! Reference source not found.**).

The sequencing of each of these categories of BMPs is discussed in the following sections.

BMP SEQUENCE

BMPs are calculated in a specified sequence. The BMP calculation sequence is not affected by the order that BMPs are added to the scenario. VAST performs the calculations according to the correct sequence, alleviating the user from having to know the order.

To understand the calculation sequence of BMPs, it is simplest to consider that each BMP is a member of a group. Within each group, there may be more than one BMP. There is a specified sequence for each group and for each BMP within a group. This grouping allows there to be some BMPs that are mutually exclusive with other BMPs.

Land use change BMPs are always calculated before any other BMP type and follow this specific order:

1. Urban Growth Reduction
2. Impervious Urban Surface Reduction
3. Forest Conservation

4. Stream Access Control with Fencing
5. Streamside Forest Buffers
6. Wetland Restoration trp
7. Land Retirement of TRP to HYO (HEL)
8. Streamside Grass Buffers
9. Tree Planting; Vegetative Environmental Buffers - Poultry
10. Forest Buffers
11. Wetland Restoration
12. Land Retirement to pas (HEL)
13. Land Retirement to HYO (HEL)
14. Grass Buffers; Vegetated Open Channel - Agriculture
15. Tree Planting; Vegetative Environmental Buffers - Poultry
16. Alternative Crops
17. Urban Forest Buffers
18. Urban Grass Buffers
19. Urban Tree Planting; Urban Tree Canopy
20. Abandoned Mine Reclamation
21. Conservation Tillage
22. Nutrient Management
23. Enhanced Nutrient Management
24. Decision Agriculture

Each of these BMPs converts a land use or group of land uses to a different land use. A few also have an effectiveness value that is implemented as a percent reduction of nutrients. The BMPs with effectiveness values are: grass buffers, forest buffers, enhanced nutrient management, decision agriculture, and wetland restoration. An effectiveness value is applied to a proportion of the original land use group that was used in the land use change. Agricultural grass and forest buffers have a nitrogen benefit on four times the amount of land that was converted and phosphorus and sediment benefit on two times the amount of land that was converted. All of the other land use change BMPs have the effectiveness values applied to the original land use group as a one to one ratio.

In these land use change BMPs there is one group with more than one member—Nutrient Management. The Nutrient Management group includes Nutrient Management, Enhanced Nutrient Management, and Decision Agriculture, which are sequenced in that order. While it may seem simpler to have an overall sequence without groups, it is necessary to maintain the group level to accommodate those BMPs that are mutually exclusive with other BMPs. the following section discusses overlapping and mutually exclusive BMPs.

After land use change BMPs are calculated, effectiveness value BMPs are calculated. They also are grouped and follow a specific sequence (Appendix Four). For example, Wetland Restoration and Forest Buffers are land use change and effectiveness value BMPs. Forest Buffers have a higher effectiveness value than Wetland Restoration. Wetland Restoration is earlier than Forest Buffers in the calculation sequence. Therefore, where a user can decide to steer resources toward implementing either Wetland Restoration or Forest Buffers, it would produce a greater load reduction to implement Forest Buffers. The implication of the groups, sequencing, and tips for optimizing reductions are in the following section.

OVERLAPPING AND MUTUALLY EXCLUSIVE BMPS

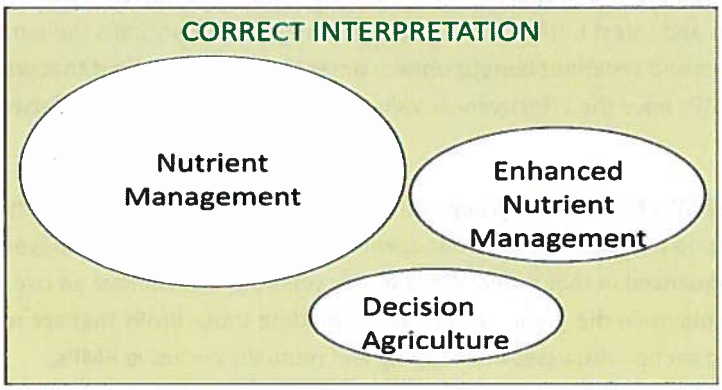
In addition to considering the BMP sequence, the user is advised to consider whether a BMP is mutually exclusive or is assumed to overlap with other BMPs. BMPs that can exist on the same acre of land are assumed to have some overlap. This overlap effectively reduces the combined effectiveness of those BMPs. This is shown in the calculation steps. The Chesapeake Bay Program refers to overlapping BMPs as "multiplicative". This type of BMP is described in USEPA 2011 documentation as:

"The other type of BMP, which applies to most controls, is considered to be multiplicative and several BMPs are applied on the same land use. These practices are considered to behave as consecutive BMPs since one BMP reduces the nutrients available for subsequent BMPs to reduce. Multiplicative functions are applied to this class of BMP and an example of multiplicative BMPs would be cropland where cover crops, a conservation plan and riparian forest buffers down-gradient from cropland where are applied."

BMPs that do not overlap are mutually exclusive. Mutually exclusive BMPs are those that cannot exist on the same acre of land. For example, streambank protection with fencing cannot exist on the same acre as streambank protection without fencing. (Note: the Chesapeake Bay Program refers to this type of BMP as "additive").

All land use change BMPs are mutually exclusive. For BMPs that are both land use change and effectiveness value BMPs, first the land use change is credited; next the effectiveness is credited to the appropriate number of acres and land use. The BMP will be listed in the table of BMP groups and sequence twice, once for the land use change and again for the effectiveness value.

For example, Nutrient Management, Enhanced Nutrient Management, and Decision Agriculture are all part of the Nutrient Management Land Use Change BMP group. These BMPs are mutually exclusive. The diagrams below illustrate the correct and incorrect interpretation of these three mutually exclusive BMPs.



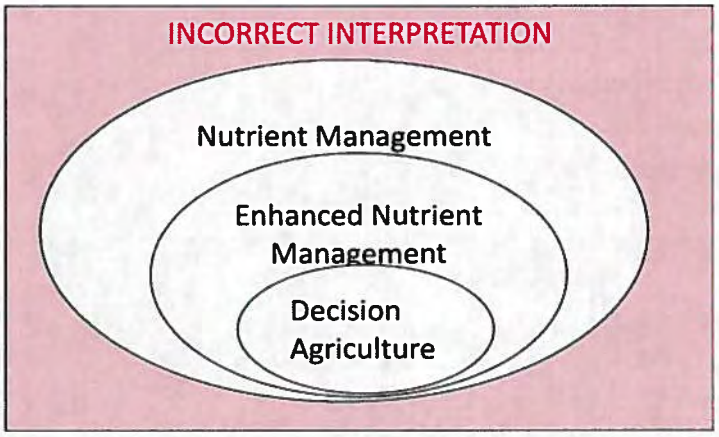


Figure 18: Correct and incorrect interpretation of mutually exclusive BMPs in the Nutrient Management group.

1. Enhanced Nutrient Management and Decision Agriculture have an effectiveness value as well as a land use change.

2. The nitrogen effectiveness value is 7% for Enhanced Nutrient Management and 3.5% for Decision Agriculture.

3. Enhanced Nutrient Management has the highest effectiveness value in this group, so the greatest load reduction will be credited by selecting only Enhanced Nutrient Management.

4. Should some Nutrient Management be selected, then those are acres that cannot have Enhanced Nutrient Management.

5. The Nutrient Management group is last in the sequence of land use change BMPs. The user could specify so many acres in grass and forest buffers, that there would be no land remaining for nutrient management.

BMPs are listed in the order in which they are calculated in Appendix Four . The table shows the group order and sequence within group. The group order and sequence within the group indicate the order in which the BMPs are calculated. BMPs are mutually exclusive if they are land use change BMPs and where there is more than one member in a group. The following calculations will elucidate this point.

CALCULATION STEPS

There are five steps used to calculate the loads given various BMP inputs (Figure 19). The following sections describe each step and multiple examples are provided.

Step 1: Determine BMP 2007 percent of land (Equation 1)

Step 2: Verify acres available

Step 3: BMP pass-through value (Equation 2)

Step 4: Overall pass-through value (Equation 3)

Step 5: Overall BMP reduction (Equation 4)

Figure 19: Computation steps

DETERMINE BMP 2007 PERCENT OF LAND

The first step in calculating the load reduction is to verify that certain BMPs submitted are greater than those submitted in 2007. This rule applies to the following BMPs:

1. Abandoned Mine Reclamation
2. Forest Conservation
3. Impervious Surface Reduction
4. Forest Buffers
5. Urban Forest Buffers
6. Wetland Restoration
7. Land Retirement on hyo
8. Land Retirement on pas
9. Grass Buffers
10. Urban Grass Buffers
11. Tree Planting
12. Carbon Sequestration/Alternative Crops
13. Urban Tree Planting

Since the base land use (2010) includes land use change BMPs from prior years, then 2007 is used as a baseline for minimum BMP implementation. The purpose of this rule is to verify that only increases in BMPs beyond 2007 levels are counted, not decreasing levels of BMPs. While it is logical to consider that 2010 is a projection and should include land use change, and therefore no credit should be given for any land use change made prior to 2010, this is not the way the Chesapeake Bay Program handles the calculation. Since VAST is designed to mirror the results of the Chesapeake Bay Program models, VAST calculations include the following equation:

Equation 1: Addressing land use change since 2007.

your scenario BMP % land > 2007 Progress scenario % land.

Example 1:
Abandoned Mine Reclamation
2007 40 acres

2010 10 acres

- No credit given because acres in 2010 are not > 2007

Example 2:

Abandoned Mine Reclamation

2007 35 acres

2010 45 acres

Credit given for 10 acres because 2007 - 2010 = 10

- Credit only given for difference.

VERIFY ACRES AVAILABLE

The second step in calculating the load reduction is to verify that there are adequate acres for each BMP. If there are not enough acres to accommodate the BMPs, then those BMPs later in the sequence will only be applied to the available acres. It is possible for the user to specify a BMP for more acres than are available.

For example, there are three members of the Nutrient Management group: nutrient management enhanced nutrient management and decision agriculture. Whenever there is more than one member of a group, the BMPs are necessarily mutually exclusive. Since Nutrient Management is mutually exclusive with Enhanced Nutrient Management, the acres available for Enhanced Nutrient Management are only those that remain after Nutrient Management is calculated. If there are a total of 100 acres, and the user specifies 95% of the acres are in Nutrient Management and 45% of the acres are in Enhanced Nutrient Management, then VAST will return 95 acres in Nutrient Management and 5 acres in Enhanced Nutrient Management. The full 45% of enhanced nutrient management was not credited because there were not enough available acres after the nutrient management was calculated. Thus, the user must consider the BMP groups and the order within groups to optimize reductions.

User input:

Total acres = 100

Nutrient Management = 95%

Enhanced Nutrient Management = 45%

Model Calculates:

Nutrient Management acres: 95% * 100 = 95

Minimum of the user input or amount remaining after the previous BMP: Min (45% * 100), (100-95)

The minimum in this case is what remains after the previous BMP: 100-95=5

Result:

Nutrient Management acres = 95

Enhanced Nutrient Management acres = 5

To verify that acres were available when using VAST, download the BMPs Submitted vs. Credited table from the Summary page. Compare the amount of acres calculated from the submitted information with the amount of acres credited.

BMP PASS-THROUGH VALUE

BMPs are calculated by land use for each segment for each pollutant. VAST calculates a single pass-through factor for BMPs in each group. A pass-through factor is simply the amount of pollutant that is not removed by the effectiveness value.

A single pass-through factor is calculated for all BMPs in a group using the following formula. This same formula also is used even where there is only one BMP in a group.

Equation 2: BMP group pass-through value

Where:
BMP=a specific BMP
g=BMP group
G=total number of BMP groups
F=pass-through factor
n=total number of BMPs in the group
i=implementation acres
t=total acres available

E= effectiveness value

OVERALL PASS-THROUGH VALUE

An overall pass-through factor is calculated by multiplying the pass-through for each group. The result will necessarily be less than or equal to one. If the result is one, then all pollutants pass through and there are no BMP reductions.

Equation 3: All groups pass-through value

Where:
F=pass-through factor
O=overall
g=BMP group
G=total number of BMP groups

OVERALL BMP REDUCTION

If it is more intuitive to consider this in terms of the overall reduction then convert the overall pass-through factor by:

Equation 4: Overall BMP reduction fraction

Where:
E=effectiveness value
O=overall
F=pass-through factor

Remember, there should be an overall reduction effectiveness value calculated for each land use and segment and pollutant.

EXAMPLE BMP CALCULATIONS

MUTUALLY EXCLUSIVE BMPS IN PASTURE MANAGEMENT GROUP

Input:

Off-stream watering without fencing

Nitrogen effectiveness value = 5%

On 70% of land

Prescribed Grazing

Nitrogen effectiveness value = 9%

On 30% of land

Total acres available in this land use in this segment

100 acres

Model calculates:

Off-stream watering without fencing (Equation 2)

70% of acres * 5% reduction = 3.5%

Prescribed Grazing (Equation 2)

30% of acres * 9% reduction = 2.7%

Pass-through value for BMPs in group (Equation 2)

100%-(3.5%+2.7%) = 93.8%

All group pass-through for pasture BMP group (Equation 3) (since there are no other groups, no need to multiply 93.8% by the pass-through values for other groups)

Result:

Overall reduction (Equation 4)

100%-93.8% = 6.2%

MUTUALLY EXCLUSIVE BMPS IN CSS DEVELOPED GROUP

Input:

Retrofit stormwater management

Nitrogen effectiveness value = 30%

On 26% of land

Wet ponds and wetlands

Nitrogen effectiveness value = 20%

On 33% of land

Dry detention ponds and hydrodynamic structures

Nitrogen effectiveness value = 5%

On 19% of land

Dry extended detention ponds

Nitrogen effectiveness value = 20%

On 3% of land

Urban infiltration-no sand/veg

Nitrogen effectiveness value = 80%

On 3% of land

Urban filtering practices

Nitrogen effectiveness value = 40%

On 1% of land

Total acres available in this land use in this segment

75 acres

Model calculates:

Multiply each BMP reduction by the percent of total acres available. Sum those numbers and subtract from 1 ()

100%-(7.8% + 6.6% + 0.95% + 0.6% + 2.4% + 0.4%) = 81.25%

The pass-through value for BMPs in group = 81.25%

Since no other BMPs are in this scenario (Equation 3), then the overall pass-through value is also = 81.25%

Result:

Overall reduction (Equation 4)

100% - 81.25% = 18.75%

OVERLAPPING BMPS IN DIFFERENT GROUPS

Input:

Off-stream watering without fencing

Nitrogen effectiveness value = 5%

On 75% of land

Group 39

Soil conservation and water quality plan

Nitrogen effectiveness value = 5%

On 25% of land

Group 37

Total acres available in this land use in this segment

100 acres

Model calculates:

Off-stream watering (Equation 2)

75% of acres * 5% reduction = 3.75%

Soil and water conservation plan (Equation 2)

25% of acres * 5% reduction = 1.25%

Pass-through value for BMPs in each group (Equation 2)

Off stream (group 39): 100%-3.75%= 96.25%

Soil Water (group 37): 100%-1.25%= 98.75%

All groups pass-through for land use in that segment (Equation 3)

96.25% * 98.75% = 95%

Result:

Overall reduction (Equation 4)

100% - 95% = 5%

OVERLAPPING BMPS IN DIFFERENT GROUPS WITH A LAND USE CHANGE

Input:

Enhanced Nutrient Management-Land Use Change and Eff.

Nitrogen effectiveness value = 7%

On 75% of Pasture land use

Group 22

Off-stream watering without fencing-Eff. only

Nitrogen effectiveness value = 5%

On 80% of Pasture land use

Group 39

Total acres available in this land use in this segment

100 acres

Model calculates:

Step 2: Calculate available acres

Enhanced Nutrient Management

75% of acres * 100 acres = 75 acres

These acres are now NM Pasture, and are what the Enhanced NM BMP will be applied to.

Remaining acres in Pasture after land use change BMPs

100 -75 = 25 acres

Off-stream watering without fencing

80% of acres * 25 acres = 20 acres

20 < 25, so apply off-stream watering to all 20 acres

Total acres available in this segment, pre-BMP

100 acres in Pasture

0 acres in Nutrient Management Pasture

Total acres in this segment, post-BMP

25 acres in Pasture

75 acres in NM Pasture

Step 3: BMP group pass-through value (Equation 2)

Enhanced Nutrient Management on NM Pasture

100% - (75/75 * 7%) = 93%

Off-stream watering without fencing on Pasture

100% - (20/25 * 5%) = 96%

Step 4: All groups pass-through value (Equation 3)

Group 22 (Enhanced Nutrient Management) on NM Pasture = 95%

Group 39 (Off-stream watering) on Pasture = 96%

NM Pasture: 93% * (other groups, which there are none of for this land use) = 93%

Pasture: 96% * (other groups, which there are none of for this land use) = 96%

Result:

Step 5: Overall BMP reduction fraction (Equation 4)

NM Pasture: 100% - 93% = 7%

Pasture: 100% - 96% = 4%

MAXIMIZING BMP SELECTION TO INCREASE LOAD REDUCTIONS

There are several ways for users to maximize their load reductions.

1. Target implementation to segments where the pre-BMP load is highest and the delivery to Bay is highest
2. Consider the BMP sequence, groups, and effectiveness values to select those BMPs that generate more pollution reductions.
3. Land use change BMPs provide more of a reduction than effectiveness value BMPs because they are always calculated before effectiveness value BMPs, where the pre-BMP load is similar. Effectiveness BMPs are calculated after the land use changes, so prioritize land use change BMPs since they will be applied to the greater portion of land. Land use change BMPs that also have effectiveness values provide the greatest overall reduction.
4. Where a BMP later in a sequence has a higher effectiveness value than a BMP earlier in that group, then verify that acres are available for the higher effectiveness BMP so full credit is given. Mutually exclusive BMPs in a group are applied to sequentially less land. Should a BMP that is later in a sequence have a higher efficiency than one that is first, then it would behoove the user to select solely the higher efficiency BMP and ensure that the BMPs earlier in the sequence were not selected. Efficiency BMPs in the same group may not treat the same acre (see the first two example calculations).

APPENDIX TWO

TABLE OF LAND USE DEFINITIONS

APPENDIX THREE

TABLE OF BMP DEFINITIONS

APPENDIX FOUR

TABLE OF BMP GROUPS AND SEQUENCE

APPENDIX FIVE

TABLE OF BMP EFFECTIVENESS VALUES BY LAND USE AND HGMR AND POLLUTANT

APPENDIX SIX

TABLE OF CONSERVATION TILLAGE

APPENDIX SEVEN

TABLE OF GEOGRAPHIC REFERENCES INCLUDING FIPS, COUNTY NAME, AND WATERSHED

APPENDIX EIGHT

TABLE OF LANDUSE CHANGE BMPS AND LANDUSES CONVERTED

APPENDIX NINE

USER-ENTERED LAND USE CATEGORY CROSS WALK

APPENDIX TEN

ANIMAL BMP LOAD ESTIMATION METHODOLOGY

Except for the animal BMPs, the BMPs in this tool are all calculated identically to the way that the Chesapeake Bay Program's Scenario Builder and Watershed Model calculate BMPs. This tool does not replicate the way the animal BMPs are calculated in the Chesapeake Bay Program's Scenario Builder because this tool requires a load for every land use in order to calculate reductions. The animal BMPs not only change the load on animal feeding operations and concentrated animal feeding operations, but also on every other manure-receiving land use. Scenario Builder uses an algorithm based on crop need. That is not built in to this tool because it would take too long for a scenario to calculate and make VAST ineffective as a rapid scenario development tool.

Figure 20 shows the impact of animal BMPs on the loads in the Chesapeake Bay Program's Scenario Builder. The animal BMPs in the diagram include: Air and ammonia emissions (biofilters, lagoon covers, poultry litter treatment such as alum), animal waste management systems (including runoff control systems, loafing lot, mortality composters), application rate change BMPs (including new crop BMPs or an application reduction), feed additives (dairy precision feeding and or forage management, poultry and swine phytase), and manure transport. When manure transport or feed additive BMPs are used, the manure load decreases. However, the crop need is not changed so inorganic fertilizer will make up the difference in the crop need. In most cases, the use of these BMPs results in a reduction of phosphorus, since the manure is applied to meet the nitrogen crop need. In other cases, there is no change in loads, while in a few cases where there is a great deal of manure in a county and not much cropland, there is a decrease in both nitrogen and phosphorus.

Animal waste management BMPs reduce the amount of manure that is lost during manure storage and that manure becomes available to spread on crops. Thus, the load on the animal feeding operation and concentrated animal feeding operation land use decreases, but the load from manure on the crop land increases. In these cases, the fertilizer load may decrease, resulting in no change in nutrients on crop land. In situations where the entire crop need was already met by manure, than the additional manure is spread on crops following a "disposal load" algorithm where all manure is spread on crop and pasture land even in excess of crop need. So, animal waste management BMPs can result in higher loads on some land uses even as loads on animal feeding operations decrease.

Given the complexity of the animal BMPs and their impact on the manure allocation algorithms, VAST uses a regression-based methodology for estimating the impact of these BMPs on loads. This methodology is described in the following section.

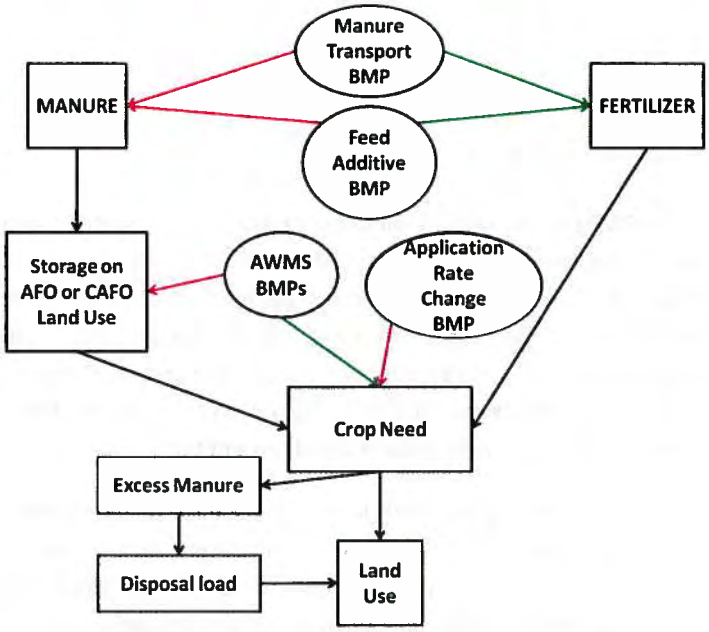


Figure 20: Impact of Animal BMPs on Loads. Red arrows indicate decreasing amounts; green arrows indicate increasing amounts.

METHODOLOGY FOR CALCULATING ANIMAL BMPS USED IN VAST

Based on the user's selection of percent implementation of the animal BMPs, VAST calculates the amount of manure. There are three classifications of manure in the model: direct deposit manure, stored manure, and storage loss manure. Direct deposit manure is directly excreted on pasture. This type of manure may be applied to the land uses: pasture, nutrient management pasture, or degraded riparian pasture. Degraded riparian pasture automatically receives nine times the amount of manure as pasture. Storage loss manure is the amount of manure that remains on animal feeding operations or concentrated animal feeding operations. Stored manure is applied to the crop and pasture land uses: alfalfa, nutrient management alfalfa, hay with manure, low-till with manure, high-till with manure, nutrient management high till, nutrient management hay, and nutrient management low-till.

Regression equations were developed for each type of manure. These regressions were run by FIPS and pollutant since the manure data is available only at that scale. The regression equations included each source of manure, nutrient management, and interaction effects.

Observations for the regressions were taken from fifteen scenarios runs from the Watershed Model Phase 5.3.2 (Figure 21). These scenarios were set up as varying levels of BMPs that increase the amount of stored manure for distribution on crop land uses (Alum, Lagoon Covers, AWMS, and Mortality Composting) and BMPs that decrease stored manure for distribution on crop land uses (Dairy Precision Feeding, Poultry Phytase, and Swine Phytase). These scenarios also incorporate five levels of nutrient management. Nutrient management is known to have a non-linear effect on nutrient loads so also was included. However, it is known to be collinear with manure, so the assumptions of the regression may be violated.

BMPs		Nutrient Management				
% Increasing	% Decreasing	0%	50%	75%	90%	100%
0	100	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
50	50	Scenario 6	Scenario 7	Scenario 8	Scenario 9	Scenario 10
100	0	Scenario 11	Scenario 12	Scenario 13	Scenario 14	Scenario 15

Figure 21: Watershed model scenarios used for estimating animal BMP impacts on loads.

Direct Deposit and Stored

WSM Load (Lb/A) ~ Direct deposit (lbs) + Stored (Lb) + NM (fraction) + (Direct deposit*NM) + (Stored*NM) + (Stored*Direct Deposit)

Where:
WSM = watershed model loads
NM = nutrient management

The explanatory variable that was most frequently significant was the interaction effect between the amount of stored and direct deposit manure (Stored*Direct Deposit). Overall, there were 100 observations where the root mean square error was zero, showing that the explanatory variables precisely explained all of the variation. There were 19 observations where the r^2 for the regression was not significant (P<0.60). These observations were considered as less reliable, but were used since an alternative was not identified. Of the observations where the r^2 was insignificant, 14 had all explanatory variable coefficients as not significant. In these instances, VAST does not alter the load for these FIPS and land uses when manure amounts change due to BMPs. Where the p value was not significant (P<0.15) for a variable, then the explanatory variable coefficient was set to zero.

Stored Only

WSM Load (Lb/A) ~ Stored (lbs) + NM (fraction) + (Stored*NM)

The variable that explained most of the difference was stored manure. There was perfect correlation (root mean square error =0) for 787 observations. There were 168 observations where none of the explanatory variable coefficients were significant. The explanatory variables did not explain the change in the loads. In these instances, VAST does not alter the load for these FIPS and land uses when manure amounts change due to BMPs. The r^2 was not significant for 144 observations (P<0.60), 52 of which did not have significant coefficients for any of the explanatory variables. Where the p value was not significant (P<0.15) for a variable, then the explanatory variable coefficient was set to zero.

Storage Loss Only

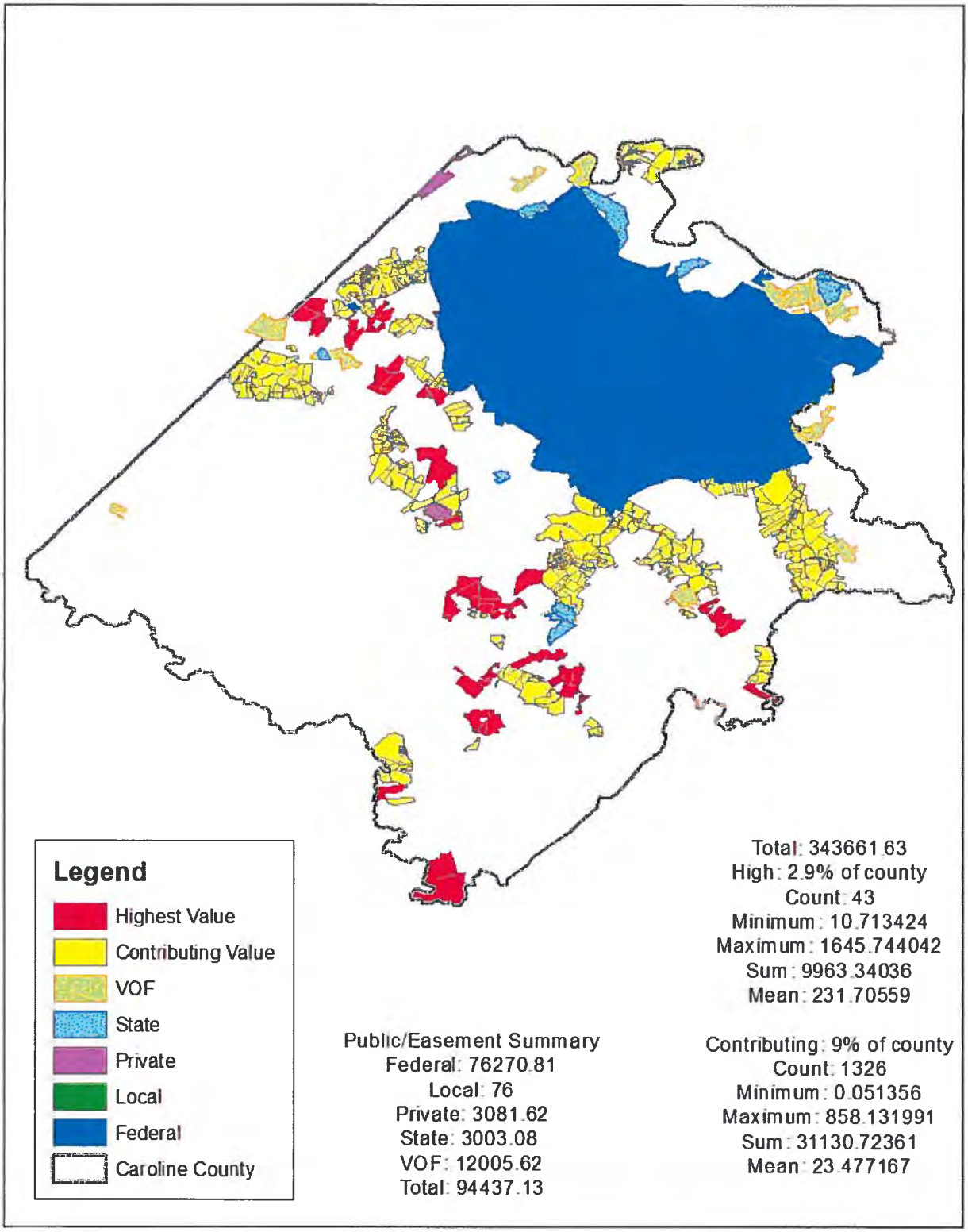
WSM Load (Lb/A) ~ StorageLoss (lbs) + NM (fraction) + (StorageLoss*NM)

Storage loss explained none of the variance. The variable nutrient management explained all of the variation. The results were less than desirable for this manure type. Therefore, the tool was programmed to calculate the loads on animal feeding operations and concentrated animal feeding operations the same way as the Watershed Model.

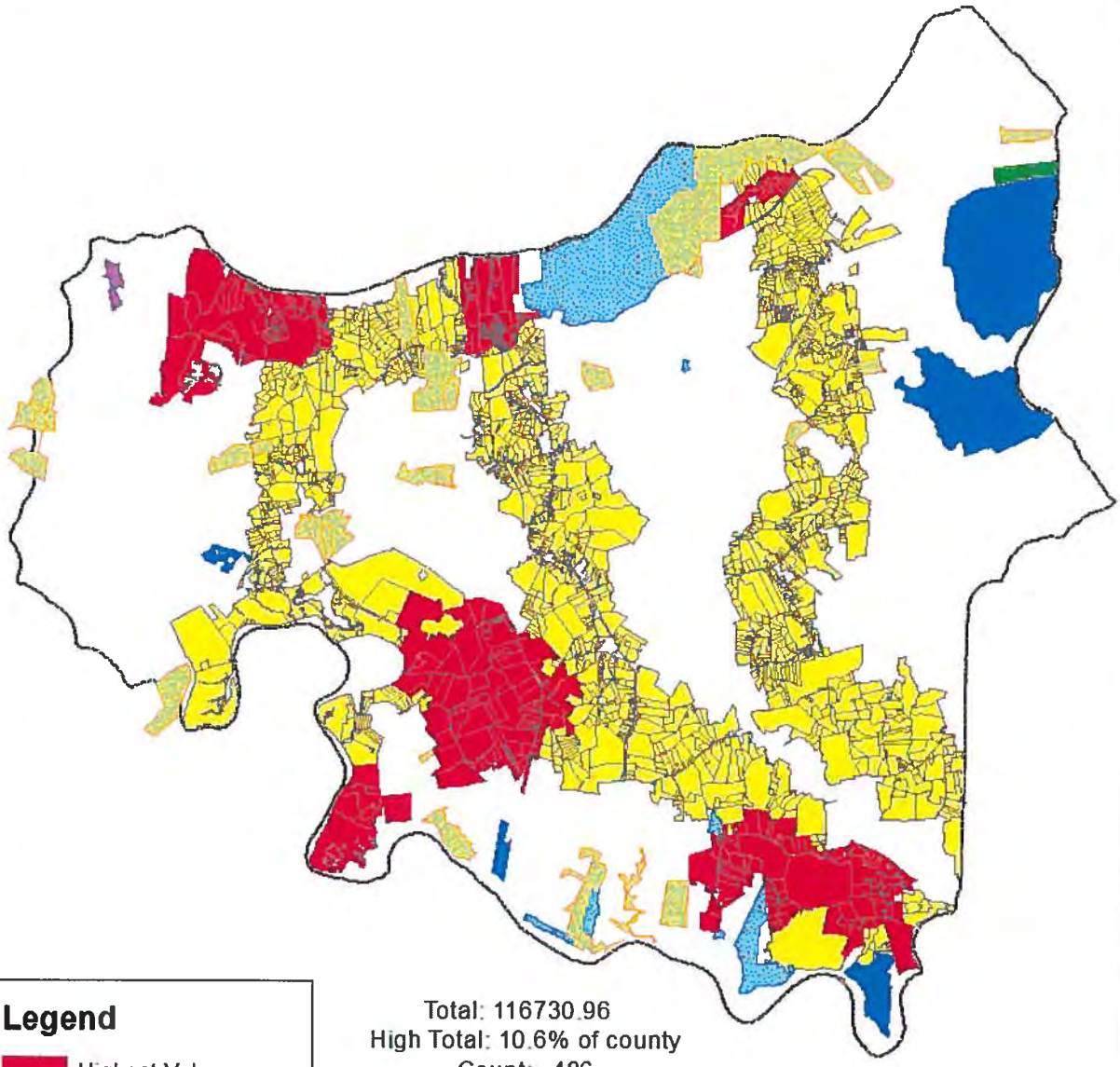
ATTACHMENT 3.2

Attachment 3.1: Green Infrastructure Targeting Maps for Conservation Easement Outreach Efforts

Caroline County



King George County



Legend

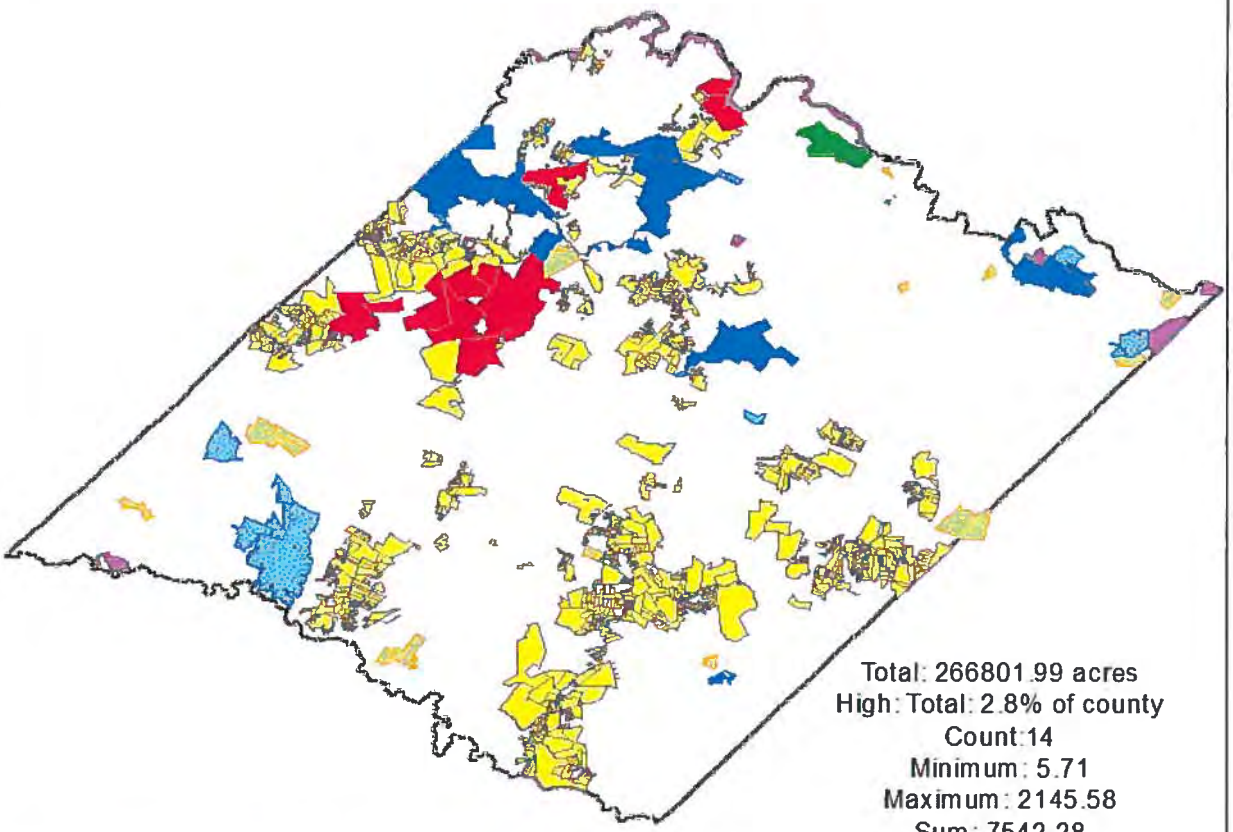
- Highest Value
- Contributing Value
- VOF
- State
- Private
- Local
- Federal
- King George County

Total: 116730.96
High Total: 10.6% of county
Count: 486
Minimum: 0.0096
Maximum: 573.34
Sum: 12371.35
Mean: 25.46

Contributing Total: 27% of county
Count: 2345
Minimum: 0.011
Maximum: 745.09
Sum: 31517.59
Mean: 13.44

Public/ Easement Summary
VOF: 10554.92
State: 4626.03
Private: 1879.43
Local: 165
Federal: 4960.27
Total: 22185.65

Spotsylvania County



Total: 266801.99 acres
High: Total: 2.8% of county
Count:14
Minimum: 5.71
Maximum: 2145.58
Sum: 7542.28
Mean: 538.73

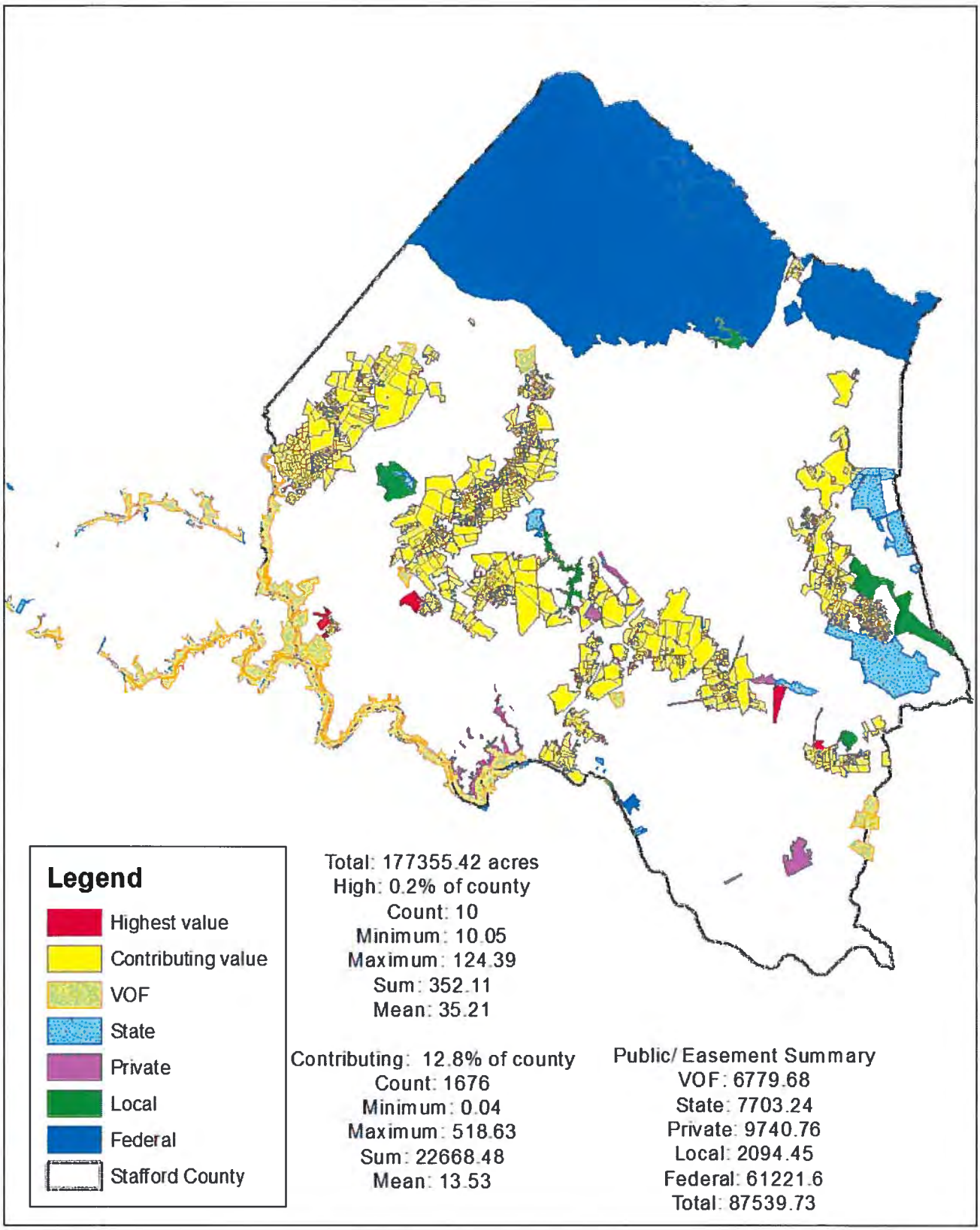
Contributing: Total: 13.7% of county
Count:1522
Minimum: 0.0026
Maximum: 909.49
Sum: 36642.88
Mean: 24.08

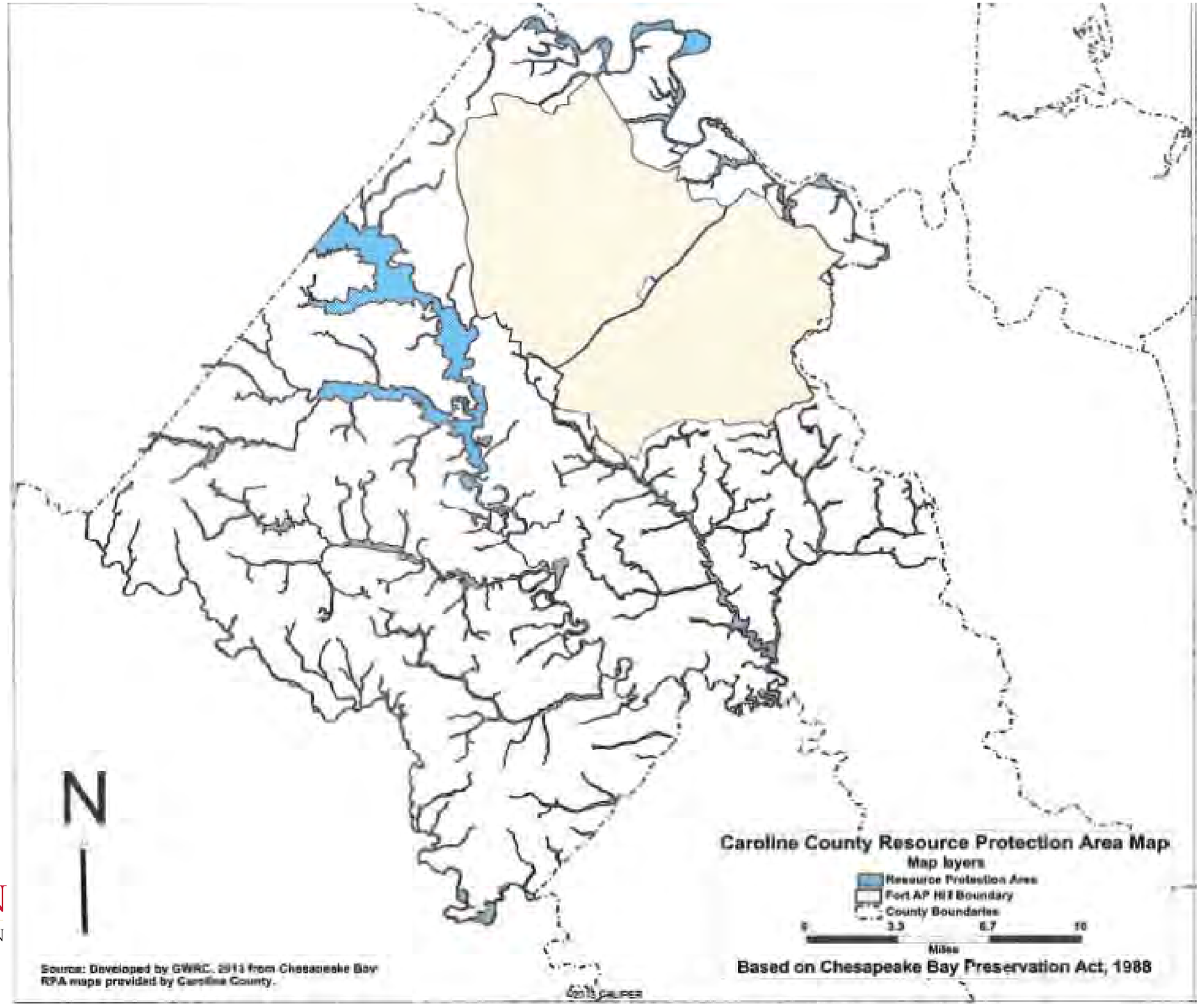
Public/Easement Summary
Local: 877
Private: 9497.44
VOF: 5966.06
State: 5217.98
Federal: 9872.18
Total: 31430.66

Legend

- Highest Value
- Contributing Value
- VOF
- State
- Private
- Local
- Federal
- Spotsylvania County

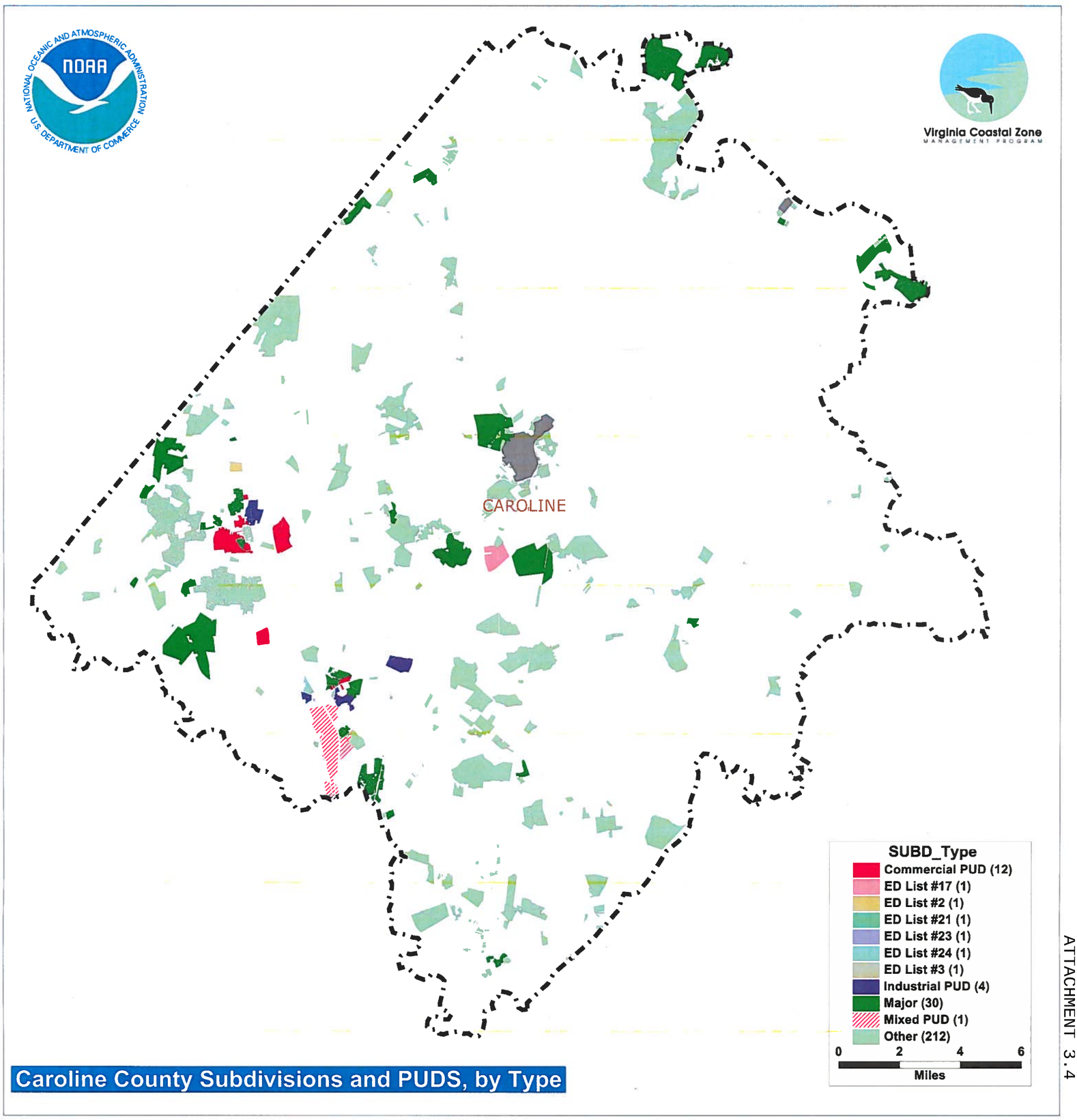
Stafford County





Virginia Coastal Zone
MANAGEMENT PROGRAM

GEORGE WASHINGTON
REGIONAL COMMISSION



Caroline County Subdivisions and PUDS, by Type

ATTACHMENT 3.4