

# Virginia Stormwater Management Regulations

Presentation to the Joint Commission on Administrative Rules

by

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# 2010 Legislative Mandates

## HB1220 and SB395

- Regulations to be completed within 280 days after the establishment of Chesapeake Bay TMDL, but no later than December 1, 2011
- Reconvene advisory panel to review and make recommendations on regulations



# Regulatory Advisory Panel (RAP)

- Consists of 35 members
- Includes representatives from home builders, consultants, engineers, local governments, state and federal agencies, environmental organizations, agriculture, bmp bank, commercial real estate
- Has met 3 times starting July 23; next meeting scheduled January 21

# Overarching guidelines to RAP

- Regulations must be science-based
- Regulations implemented in next general permit cycle (July 2014)
- Between effective date of October 2011 and July 2014, local governments develop and adopt programs
- Emphasis on developing statewide applicable water quality standard
- RAP reviewing Parts 1 (definitions), 2 (water quality and water quantity), and 3 (local program delegation)
- Part 13 (VSMP permit fees) previously adopted; not subject to RAP review



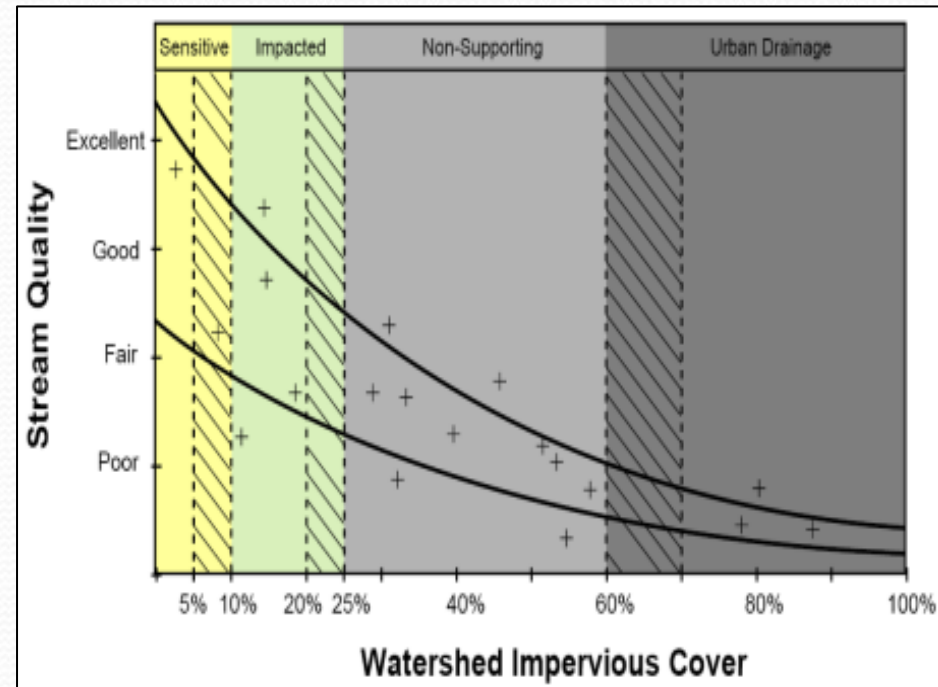
# RAP Subcommittees

- RAP divided into 5 subcommittees to address significant issues; subcommittees met 3-4 times
  - Grandfathering
  - Local Program Delegation
  - Offsets
  - Water Quality
  - Water Quantity

# Water Quality Standard (new development)

## Pathway to Potential Water Quality Standard (1)

- Based on impervious cover
- Science shows correlation between impervious surface and local stream water quality
- Impervious cover values of as little as 5-10%, local stream health begins to be affected
- Serious impacts as low as 25% impervious
- Applicable statewide



Schueler, T., Fraley-McNeal, L., and Capiella, K. "Is Impervious Cover Still Important? Review of Recent Research." *Journal of Hydrologic Engineering*, April, 2009



# Calculations for Pathway (1)

- RAP discussing impervious cover levels that would correlate to between 0.36 to 0.41 lb/ac/yr
- Development load based on average soil condition
- Development load computed through Virginia Runoff Reduction Method (including forest pollution load)

Forest (%)	Impervious Cover (%)	Turf (%)	Total Development Load
62.5	7.5	30	0.36 lb/ac/yr
60	10	30	0.41 lb/ac/yr

# Water Quality Standard (new development)

## Pathway to Water Quality Standard (2)

- Science based on new development historical land-use pattern
- No increase in pollution loading across the watershed
- Percentage of forest and agricultural lands converted for development
- Phosphorus design standard could range from between 0.51lb/ac/yr to 0.56 lb/ac/yr for Chesapeake Bay watershed

later, we do not present maps of wetland loss. We found that some smaller municipalities, particularly those adjacent to growing urban centers such as Norfolk and Richmond in Virginia, lost as much as 17% of their forest lands and 36% of their agricultural lands to development (Figs 8A and B). High losses are also observed in the counties near Washington, DC, Baltimore, MD, and Philadelphia, PA. Outlying counties further from rapidly urbanizing centers experienced losses from 0% to 1.5% for forests and 0% to 2.5% for agriculture. The spatial pattern of these “hot spots” of

Historic development trends were derived from: Jantz, P., Goetz, S., and Jantz, C. 2005. *Urbanization and the Loss of Resource Lands in the Chesapeake Bay Watershed*. Journal of Environmental Management. 36 (6): 808-825.



# Calculations for Pathway (2)

## Chesapeake Bay Watershed:

- Scenario 1

$388 + 1,016 + 2 = 1,406$  km<sup>2</sup> converted

$390 / 1,406 = 28\%$  converted from forest  
(with wetlands)

$1,106 / 1,406 = 72\%$  converted from  
agriculture

- Scenario 2

$826 + 60 + 1,543 = 2,429$  km<sup>2</sup> converted

$886 / 2,429 = 36\%$  converted from forest  
(with wetlands)

$1,543 / 2,429 = 64\%$  converted from  
agriculture

In our most conservative estimate, we calculate that at least 388 km<sup>2</sup> of forest lands, 1,016 km<sup>2</sup> of agricultural lands, and 2 km<sup>2</sup> of wetlands, have been lost to commercial and residential development within the CBW since 1990. As much as 826 km<sup>2</sup> of forests, 1,543 km<sup>2</sup> of agricultural lands, and 60 km<sup>2</sup> of wetlands have been converted, although we emphasize the more moderate results derived from the land cover agreement map indicating losses of 504 km<sup>2</sup> for forests, 1,266 km<sup>2</sup> for agricultural lands, and 2 km<sup>2</sup> for wetlands. However, we would expect functional losses,

# Calculations for Pathway (2)

- Phosphorus design standard could range from between 0.51lb/ac/yr to 0.56 lb/ac/yr

TP Load Based on Varying Percentages of Previous Land Uses Converted to Development					
Source	% Forest	Forest TP Load (lb/ac/yr)	% Agriculture	Agriculture TP Load (lb/ac/yr)	Total TP Load (lb/ac/yr)
Scenario 1	28% - 29%	0.11	72% - 71%	0.74	0.56
Scenario 2	36%		64%		0.51

For forest:  $1,072,000\text{lb/yr} / 9,776,274\text{ ac} = 0.11\text{ lb/ac/yr}$

For agriculture:  $2,097,000\text{ lb/yr} / 2,836,970\text{ ac} = 0.74\text{ lb/ac/yr}$

Scenario 1:  $(0.28 \times 0.11\text{lb/ac/yr}) + (0.72 \times 0.74\text{lb/ac/yr}) = 0.56$

Scenario 2:  $(0.36 \times 0.11\text{lb/ac/yr}) + (0.64 \times 0.74\text{lb/ac/yr}) = 0.51$



# Water Quality Standard (redevelopment)

- Draft recommendations based on impervious cover
- If impervious cover stays same,
  - sites  $\geq 1$  acre have to reduce phosphorus load at least 20% below the predevelopment load
  - sites  $< 1$  acre have to reduce phosphorus load at least 10% below the predevelopment load
- If impervious cover increases,
  - design criteria for new development applied
  - for linear projects, may reduce phosphorus load by 20%

# Water Quantity

- Includes channel (stream) protection and flood protection
- Channel protection
  - 3 conditions (flow rate to manmade systems, flow rate to restored systems, flow rate to stable natural systems)
  - After development: flow x volume has to be  $\leq$  flow x volume before development
- Flood protection
  - 2 conditions (either system does not experience localized flooding or system does experience localized flooding)
  - Development of site must improve condition; issue still being discussed by subcommittee



# Offsite Compliance Options

- Offsite compliance options include nonpoint nutrient offsets, locality pro-rata and in-lieu-fee programs, developer options, and comprehensive watershed management plans
- Subcommittee working to address several issues including
  - minimum standards threshold
  - presumptive standard to allow easier use of offsite options
  - Southern Rivers offsite options limited
  - timing of offsite options
- Subcommittee recommendations to be presented to RAP in January

# Local Programs

- Subcommittee has made significant revisions
- “one-stop” shopping when localities adopt program
- Program requirements the same for DCR and localities; may be implemented differently
- Localities enforce ordinances; DCR enforces VSMP permit
- Subcommittee recommendations to be presented to RAP in January



# Grandfathering

- Project with VSMP permit coverage prior to July 2014 will be subject to current standards until June 30, 2019
- Until June 30, 2019, project with approved locality plan or plat prior to effective date of regulations will be grandfathered
- Until June 30, 2019, locality, state and federal projects where funding has been obligated or DCR has approved a stormwater management plan prior to the effective date of the regulations will be grandfathered
- For projects with governmental bonding or debt-financing issued, projects will remain subject to today's standards
- For projects part of a common plan of development or sale that has received VSMP permit coverage before July 1, 2014, project will remain subject to today's standards

# Virginia's Watershed Implementation Plan Chesapeake Bay TMDL

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# Stakeholder Advisory Group

- Membership
  - 40 members representing agriculture, wastewater, developed and developing lands, local and federal government, NCOs, seafood industry and consultants
- Charge
  - Provide for a transparent process, a forum for open discussion, advice on pollutant load reductions by sector and on the ability of current, expanded, and new programs to achieve the needed pollution reductions
- Met 5 times to date plus 8 working group meetings and 2 steering committee meetings

# Overview of Wastewater

- Significant dischargers will not exceed current allocations based on Water Quality Management Planning regulation and Chesapeake Bay Watershed General Permit regulation
- Plus additional significant N & P reductions in the James and some P reduction in the York
- Nonsignificant discharger loads based on 2005 Code of Virginia procedures
- Combined sewer systems load reductions based on long-term control plan for bacteria



# Overview of Agriculture

- Implementation of Resource Management Plans that may include:
  - Nutrient management plans (NMPs)
  - Soil conservation plans
  - Cover crops
  - 35' grass or forest buffers
  - Livestock stream exclusion from perennial streams
  - Assessment of all BMPs in place to determine adequacy
- 95% coverage needed of most of the above practices by 2025
- Better accounting of voluntary and currently required practices
- Plus many other practices that reduce nutrients and/or sediment
- Contingencies if Ag milestones not met – potential future request for legislation

# Overview of Onsite/Septic

- Revisions to Code of Virginia (VDH) will be considered to require for all new and replacement systems, the use of either:
  - Shallow-placed drainfields to reduce nitrogen loss, or
  - Denitrification systems (sites where shallow-placed is not an option)
- Seek legislative requirement for 5 year septic pump-out requirements
- Consider Code revision to encourage the use of community systems
- Seek legislation for tax credits or low interest loans to encourage upgrading existing septic systems to nitrogen reducing systems
- Expanded nutrient credit exchange program to offset new systems



# Overview of Urban Stormwater

- Revise stormwater management regulations to prevent loads from increasing above loads allowed for previous land uses
- Maximize implementation of urban nutrient management:
  - All municipal/county owned lands implement NMPs
  - Lawn service companies follow DCR criteria for fertilizer use and voluntary reporting
  - NMPs on all golf courses
  - Sales restrictions or controls on do-it-yourself fertilizers
  - Prohibit use of nitrogen based deicers
  - Require proper storage and disposal of non-agricultural fertilizers by retailers
- Install BMPs on ~25% of existing regulated developed lands to generate reductions beyond urban nutrient management





# Potential 2011 Legislation

- Nutrient Credit Exchange (study in 2011)
- Local government regulation of fertilizer
- Resource management plans for use in urban settings