

# Virginia Stormwater Regulations Proposed Changes

Planning Commission

May 5, 2009



## WHY “MANAGE” STORMWATER ANYWAY??

### ISSUES OF:

1. Pollution runoff from surfaces
2. Increased volumes of water
3. Increased velocities
4. Increased peak flows

# 2004

## **HB1177** – Revised Virginia Stormwater Management Law to ...

- Consolidate all stormwater management programs within DCR
- Transfer oversight from 4 state Boards to SWCB & DCR
- Provide consistency statewide
- Update Regulations
- Required quality & quantity control statewide

# HB1177 → SWM Programs Mandatory Statewide (10.603.3)

- ***Localities located within Tidewater Virginia or localities partially or wholly designated as an “MS4” are required to adopt a local stormwater management program.*** (Albemarle County, City of Charlottesville, MS4= “Municipal Separate Storm Sewer System”)
- *Localities not within Tidewater and not MS4 may elect to adopt and administer a local stormwater management program.* (Fluvanna, Greene, Nelson, Louisa)
- *In the absence of the delegation of a stormwater management program to a locality, DCR must administer a stormwater management program within that jurisdiction.*

# HB1177 → 10.1-603.4 (Code of VA)

- Procedures for delegation of program to locality
- Long-term maintenance of practices
- Administrative procedures of local programs
- Statewide permit fee schedule to cover costs
- Statewide standards for land disturbance 1 acre or greater ( $\geq 2,500$  sq.ft. in CBPA areas)
- Minimum design criteria for practices
- Encourage LID
- Require that programs *“maintain after-development runoff rate of flow and characteristics that replicate, as nearly as practicable, the existing predevelopment runoff characteristics and site hydrology, or **improve** upon the contributing share of the existing predevelopment runoff characteristics and site hydrology if stream channel erosion or localized flooding is an existing predevelopment condition”*

# Technical Criteria: New Approaches

- Nutrient Load Standard tied to Tributary Strategy goals
- Integration of quality & quantity criteria
- More options to meet requirements (site design, new practices)
- Treat “managed turf” in addition to impervious cover
- Compliance spreadsheet
- Training & feedback – Design charrettes

# Nutrient Load

## Existing:

- Average land cover condition (16% impervious) = .45 lbs/ac/year TP
  - Impervious area only
  - Treatment volume =  $WQV = \frac{1}{2}'' \times \text{impervious area}$
- 

## Proposed :

- Tributary Strategy goal = .28 lbs/ac/year TP (Prior developed: 20% below existing)
- Impervious cover and managed turf → Incentives to conserve forest cover
- Treatment volume ( $T_v$ ) based on 90th percentile storm event (1'') & site runoff coefficient ( $R_v$ )

# Integration: Quality & Quantity

## Existing:

- Quantity criteria based on peak flows only (no volume reduction “credit”)
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## Proposed :

- Runoff Reduction (RR) achieved from tree canopy, soil or engineered infiltration, evaporation, rainfall harvesting, etc.
- RR determines additional quantity & quality treatment needed



# Quantity Criteria – Channel Protection

## Existing:

- MS-19 (Erosion & Sediment Control Regulations)
- Pgm Authority may request 24 hr. ext detention 1 yr., 24 hr. storm

## Proposed:

- Discharge to man-made system – 2 year storm basis (adequacy)
- Discharge to restored system – design capacity of system
- Discharge to stable natural channel – **Energy balance** concept (1 year storm)
  - $Q_{\text{post}} \times RV_{\text{post}} = Q_{\text{pre}} \times RV_{\text{pre}}$
- Discharge to unstable natural channel – **Energy balance** concept (1 year storm)
  - $Q_{\text{post}} \times RV_{\text{post}} = Q_{\text{forest}} \times RV_{\text{forest}}$

# Quantity Criteria – Flood Protection

## Existing:

- $Q_{10} \text{ post} \leq Q_{10} \text{ pre}$

## Proposed:

- Discharge to man-made system, restored system, or natural system that does not flood in 10-yr storm
  - $Q_{10} \text{ post}$  confined within system
- Discharge to natural system that currently experiences flooding
  - $Q_{10} \text{ post} = Q_{10} \text{ forested}$



# Acceptable BMPs

## Nutrient Reduction & Runoff (Volume) Reduction Rates Assigned:

- Green Roof
- Rooftop Disconnection
- Rain tanks/cisterns
- Soil Amendments
- Permeable Pavement
- Grass Channel
- Bioretention
- Infiltration
- Dry Swale
- Sheet Flow to Conserved Open Space

Design standards: Levels 1 & 2 (enhanced)

# Acceptable BMPs

## Nutrient Reductions Rates Assigned

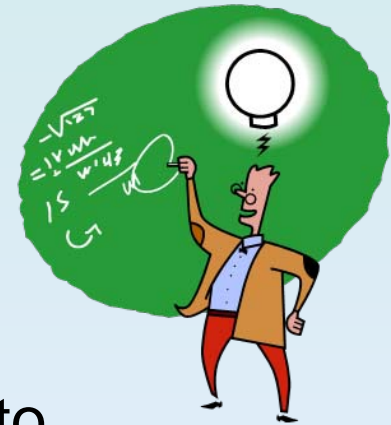
(Insignificant Runoff Volume Reductions):

- Wet Swale
- Extended Detention Pond
- Filtering Practice
- Constructed Wetland
- Wet Pond

Design Standards: Levels 1 & 2 (enhanced)

# Compliance Spreadsheet Encourages Step-By-Step Design Approach:

1. Incentives to conserve forest & open space and apply good site design (minimize impervious areas and soil disturbance)
2. Engineered practices that address *runoff* reduction in addition to nutrient reductions
3. Runoff reduction volume (RR) incorporated to provide remainder of reductions needed in nutrient load and quantity through use of conventional practices.
4. Potential use of “offset fee” for unmet nutrient reduction needs (last resort, based on local watershed plan)



# ***LOCAL PROGRAM ADMINISTRATION***

- Stormwater plan review and approval procedures
- Long term maintenance & inspections of BMPs
- Enforcement procedures
- Reporting and record-keeping requirements
- Procedures for local program authorization
- Procedures for review of local programs



# Fees to Support Local Program Implementation and DCR Oversight:

- *Local program (72%) – intended to cover 100% projected local costs*
- *DCR oversight (28%) – intended to cover 100% projected DCR costs*



# Economic Impact Analysis

- VA Tech report (costs of implementation)
  - Dec. 31, 2008 (available at [www.dcr.virginia.gov/lr2c.shtml](http://www.dcr.virginia.gov/lr2c.shtml))
- DCR report (includes VA Tech report and potential benefits) – To be released prior to public comment period.



# VA Tech Report

(the condensed version: 40 pages to 4 bullets)

- “Generally” increases costs of land disturbance
- Significant site-specific variability (field conditions, high variability in costs of BMPs, off-site alternatives, local program options) → no comprehensive cost estimate produced.
- Little known about long term maintenance costs (over lifespan: 40%-280% of construction costs)
- Case scenarios provided – Ranges (upfront cost increases):
  - \$0 - \$750,000 per project
  - \$0 - \$6,000 per dwelling unit

# DCR's Points

- Program Consistent Statewide
- Volume Reductions and Pollutant Removal Integrated
- More Tools in the Toolbox (Site Design, Handbook, Clearinghouse, Spreadsheet, Charrettes)
- Incentives to Protect/Restore Forest Cover
- Incentives to Reduce Soil Disturbance
- Based on Tributary Strategy Goals
- Local Option for Offset Fee
- Program Fees Designed to Cover Program Costs

# Staff's Comments

- Proposed regulations have inconsistencies with County's goal of minimizing sprawl. An offset fee based pollutant trading program may be needed and nobody has done this in Virginia.
- Discharge requirements may simply not work for some sites, setting up a complicated waiver consideration ( $Q_{\text{post}} \times RV_{\text{post}} = Q_{\text{forest}} \times RV_{\text{forest}}$ )
- Proposed regulations rely heavily on complicated calculations that require judgment and have incentives to "shave" numbers, setting up conflicts with reviewers
- Proposed regulations will be difficult to administer and questions remain on whether fees will really cover County's costs
- Grandfathering of approved rezonings and preliminary plans still needs to be resolved.
- "The elephant in the corner" – the agricultural pollution runoff must be solved or this expensive program will not make a difference