

Stormwater Management

Municipal Separate Storm Sewer System (MS4) &
Virginia Stormwater Management Program (VSMP)

Council Work Session

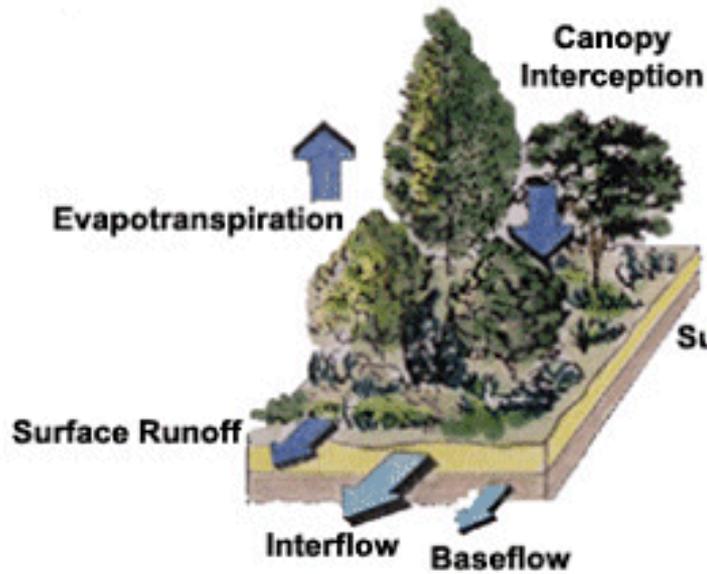
October 29, 2013



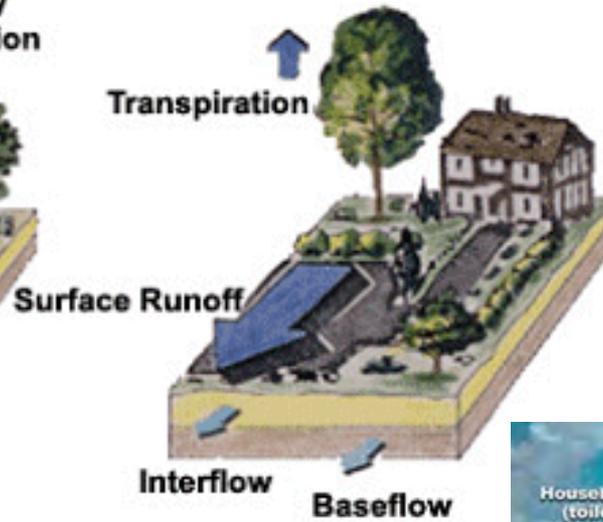
South Park Sewerwater Reuse

Water Balance

Pre-Development



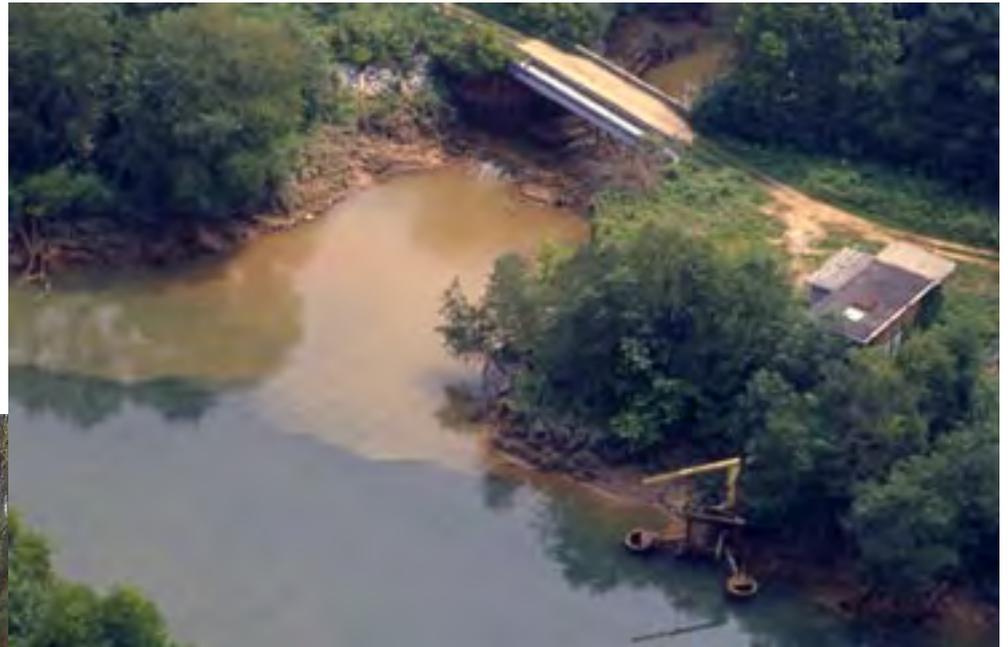
Post-Development



TOO MUCH, TOO FAST!



SEDIMENT



NUTRIENTS



Sewage, Detergents, Wastewater, etc. Illicit Discharges



Why Do We Care?



Why Do We Care?



Why Do We Care?



Why Do We Care?



Why Do We Care?



Virginia State Parks

Why Do We Care?



Project Healing Waters Fly Fishers

REGULATIONS

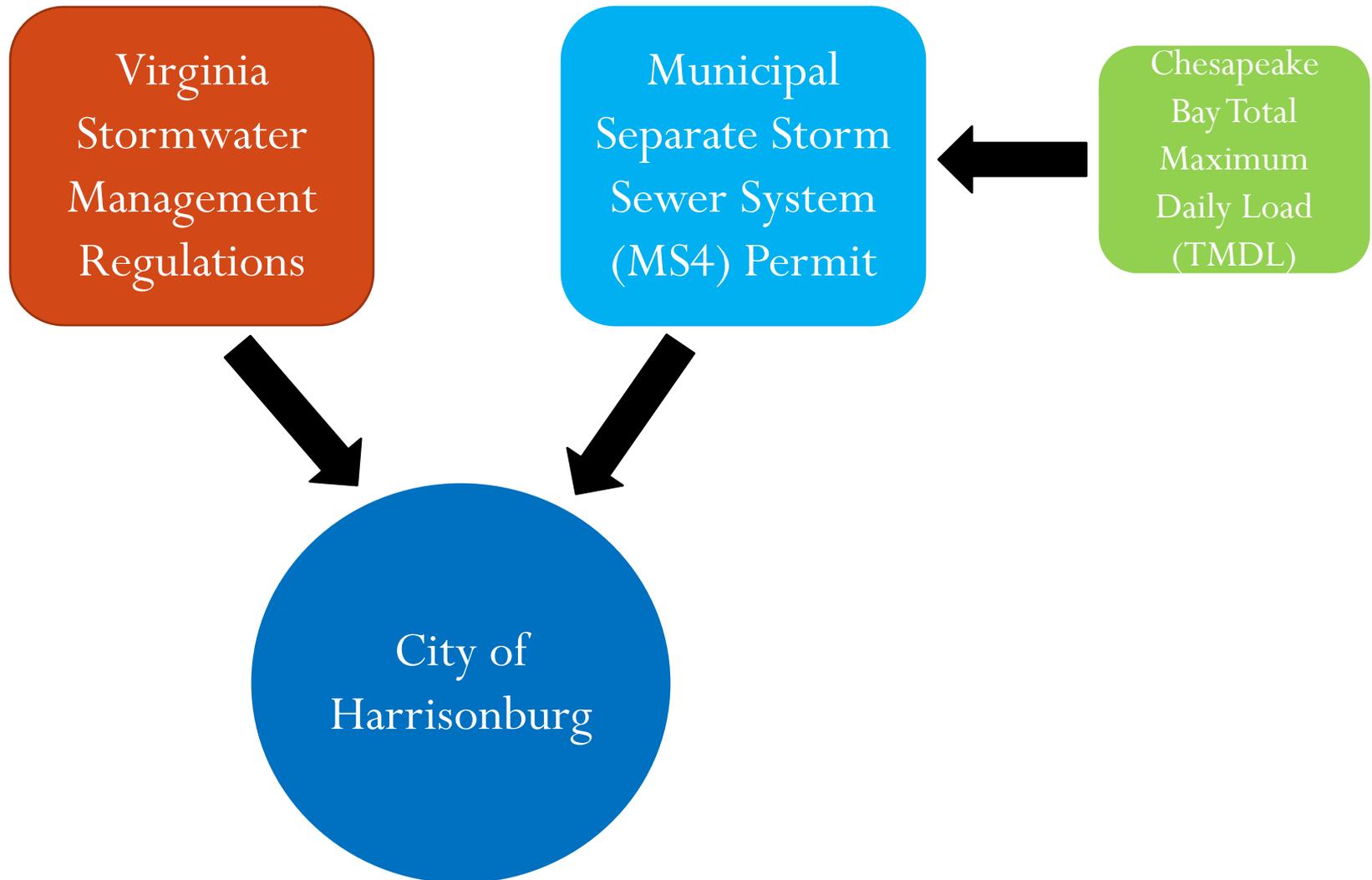
Agriculture/Forestry

**New Development
& Redevelopment**

**Existing Developed Area
(public & private)**



Regulations Impacting the City



VA Stormwater Management Regulations

- Updated regulations governing development effective in 2011 with grandfathered provisions
- Requirements for development more stringent and protective of water quality – new design standards
- More stormwater management facilities required:
 - More city staff time to review plans
 - More facilities to track
 - More inspections to conduct – during construction and post-construction
- State administered VSMP stormwater permit program delegated to the City
 - Additional plan review and site inspections
 - Permit enforcement becomes local responsibility
 - Recent shift from DCR to DEQ
- Addresses MS4 requirement for post-construction SWM in development

VA Stormwater Management Regulations

- **Water Quality Design Criteria**
 - Old standard based on pollutant load from 16% impervious site
 - New standard based on maximum 0.41 lb/ac P in effluent
 - Redevelopment must reduce existing P load by 20% - new impervious load to 0.41 lb/ac. Old standard only 10% reduction
 - BMPs (Best Management Practices) must be pre-approved through VA BMP Clearinghouse
 - Turf areas become a pollutant source where now benign
 - Open space reservation becomes more valuable
 - Offsite compliance options
- **Water Quantity Design Criteria**
 - Similar to old regs – better defined
 - Extent of controls dependent on downstream conditions
- **Runoff Reduction Method**
 - Considers BMPs will reduce runoff along the way – makes the use of multiple BMPs a better option than one big one
 - Rewards use of infiltration practices – problem in clay soils and karst areas
 - Spreadsheet developed by CWP and DCR to be utilized for quality and quantity
- **DEQ now has revised VA SWM Handbook online (1800+ pgs.)**

VA Stormwater Management Regulations

- **Compliance**
 - Land Disturbance > 1 acre
 - Land Disturbance < 1 acre under common plan of development
- **SWC Board program approval requires:**
 - Local SWM Ordinance
 - Policies and Procedures Documents
 - Funding & Staffing Plan
- **Schedule**
 - “Final preliminary package” (staff document) due to DEQ 12/15/13
 - DEQ reviews package through January 2014
 - City Council consideration of final ordinance in Feb/March 2014
 - Final submission for May SWCB consideration due 4/1/14
 - Final local ordinance/program adoption deadline 6/13/14
 - Program Implementation 7/1/14

VA Stormwater Management Regulations

- **VSMP Fee Schedule** (State retains 28% of required minimum fees)
 - Site disturbance < 1ac. (common plan of devel.) \$290
 - Site disturbance 1- 5 ac. \$2700
 - Site disturbance 5-10 ac. \$3400
 - Site disturbance 10-50ac. \$4500
 - Site disturbance 50-100 ac. \$6100
 - Site disturbance >100 ac. \$9600
- City collects 50% of fee at plan submission; remaining 50% paid at permitting with State share (28% of total fee above) going straight to DEQ
- Other VSMP related fees: Annual Permit Maintenance Fee, Transfer Fees
- State fee schedule above considered by DCR as adequate for local program administration, but did not consider long term inspections & record keeping

VA Stormwater Management Regulations

- VSMP Fee Review vs. City Cost
 - City cost analysis based on avg. 3.7 acre project; 12 mo. construction time
 - Staff costs based on hourly rate + 30%; 106 manhours avg.; \$200 misc. cost added per project
 - Typical project cost to City through construction only = \$3520
 - SWM Fee collected = \$2280 (not incl. any resubmission fees)
 - Shortage of \$1240 per project through construction only
 - Could consider appropriate plan resubmission fees
 - Other fees: Site Plan Review, E&S \$1000 avg. total

Chesapeake Bay TMDL

- EPA published Bay “pollution diet” in 2010 and approved Virginia’s Watershed Implementation Plans in 2010 (Phase I) and 2012 (Phase II)
- Requirements have been included in City’s MS4 Permit
- City is responsible for reducing sediment, phosphorus, and nitrogen from stormwater discharges from existing developed lands over the next three MS4 permit cycles:
 - 5% of total reductions in first MS4 permit cycle (2013-2018)
 - 35% in second MS4 permit cycle (2018-2023)
 - 60% in third permit cycle (2023-2028)
- Pollutant reduction goals achieved by implementation of stormwater management controls and practices – **at a significant cost to the City**

MS4 Permit

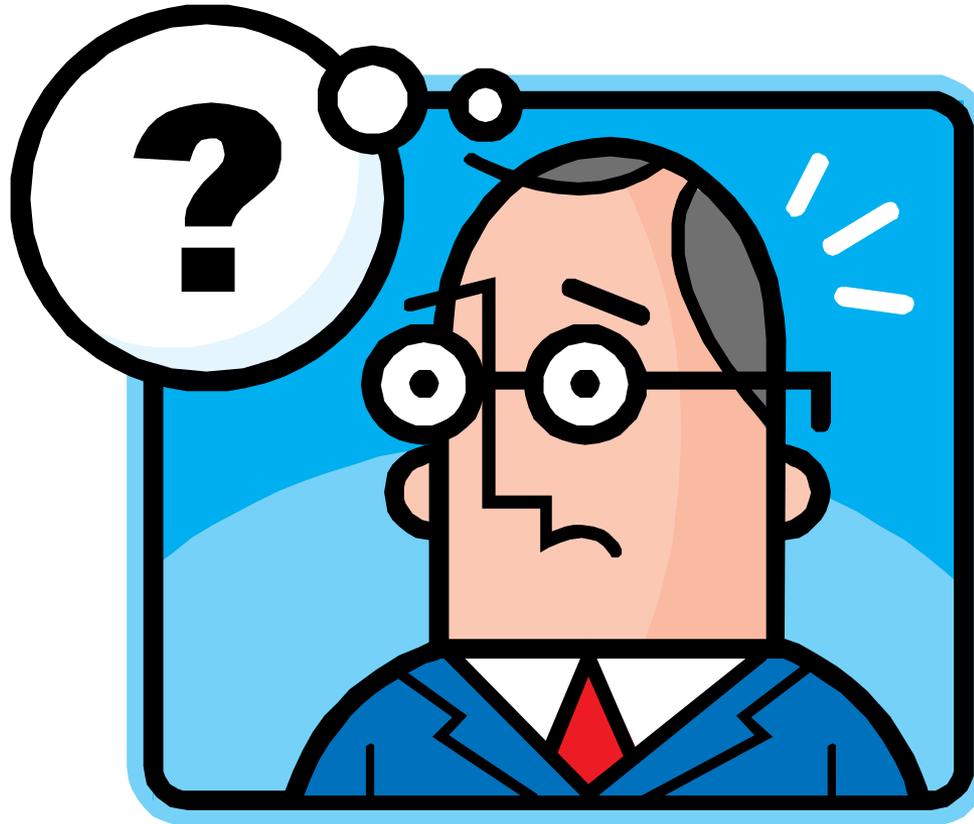
- MS4 Permit mandated by federal Clean Water Act
- New permit in effect July 1, 2013, with significant requirements including:
 - Public Education & Outreach
 - Public Involvement
 - Illicit Discharge Detection & Elimination
 - Construction Stormwater Controls
 - Post-Construction Stormwater (+ Maintenance)
 - Pollution Prevention/Good Housekeeping
 - Chesapeake Bay TMDL Action Plan and pollutant reduction mandates
 - Action Plans for local impaired waters

MS4 Permit

Activity matrix to discuss roles in the MS4 permit

	Edu. + Outreach	Insp. & Resp.	Ord. & Policies	Plan Rev., Insp., & Maint.	Mapping	Land Mgmt.	Capital Projects	Tracking & Data Mgmt.
<i>City Manager's Office</i>	X	X	X	X				X
<i>City Attorney</i>	X	X	X					X
<i>Community Development</i>	X	X	X	X	X	X	X	X
<i>Econ. Development</i>	X	X	X					X
<i>Finance</i>		X						X
<i>Fire</i>	X	X				X	X	X
<i>Info. Tech.</i>	X	X		X	X			X
<i>Parks + Rec.</i>	X	X	X	X	X	X	X	X
<i>Police</i>	X	X				X	X	X
<i>Public Trans.</i>	X	X				X	X	X
<i>Public Util.</i>	X	X	X			X	X	X
<i>Public Wrks</i>	X	X	X		X	X	X	X
<i>Schools</i>	X	X				X	X	X
<i>Harrisonburg Electric Commission</i>	X	X				X	X	X

What Does It Mean for Us?



VSMP

MS4 Permit

Blacks Run CleanUp Day



- Partners: City Parks & Rec/ Public Works, DEQ, DCR, SWCD, JMU, Harrisonburg HS, others
- Started 2001: started as community organized & is now city organized – led by Stream Health Coord.
- April 2013: 450 volunteers, 4,600 lbs of trash
- GreenScene Exhibits and Activities!



MS4 Permit

Pollution Reports & Investigation



MS4 Permit

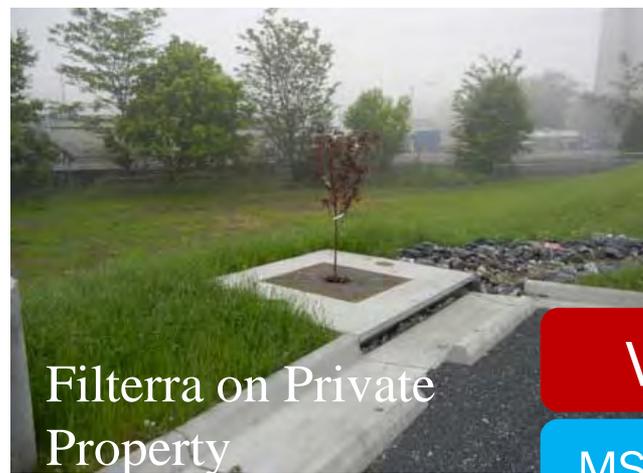
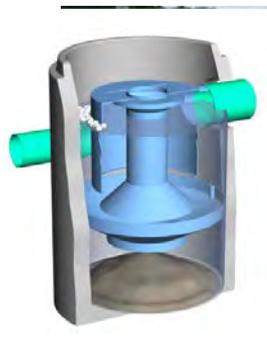
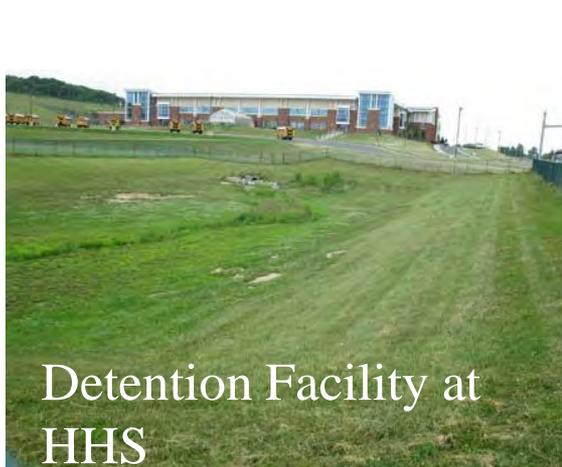
Construction Stormwater Control (Erosion & Sediment Control)



E&S

MS4 Permit

Stormwater Management Facilities (Construction, Post-Construction Inspections & Long-Term Maintenance)



VSMP

MS4 Permit

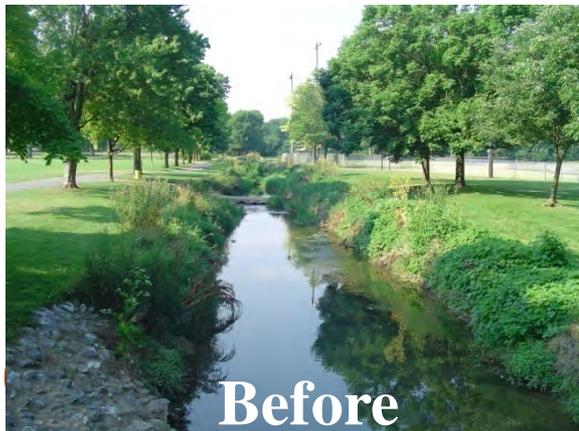
Street Sweeping



MS4 Permit

Purcell Park Stream Restoration

- 2005-2009
- Restored ~4,750 linear feet of Blacks Run and two tributaries in Purcell Park, Conservation Easement
- 7 log and rock structures; 3,500 oak, sycamore, ash, cottonwood, birch, redbud, dogwood, and maple trees planted in 13 acres; Over 2,000 live stakes planted in stream banks, providing stability and riparian habitat
- Serves to reduce sedimentation and nutrient runoff



Arlington County, VA



MS4 Permit

Charlottesville, VA



MS4 Permit



Charlottesville, VA



MS4 Permit

Fairfax County, VA



Municipal Good Housekeeping

- Employee training and education
- Landscaping and Nutrient Management Plans
- Vehicle Fueling
- Vehicle and Equipment Maintenance
- Vehicle and Equipment Washing
- Parking Lot and Street Cleaning
- Road Salt Application and Storage
- Storm Drain System Cleaning
- Materials Storage and Management
- Spill Response and Prevention

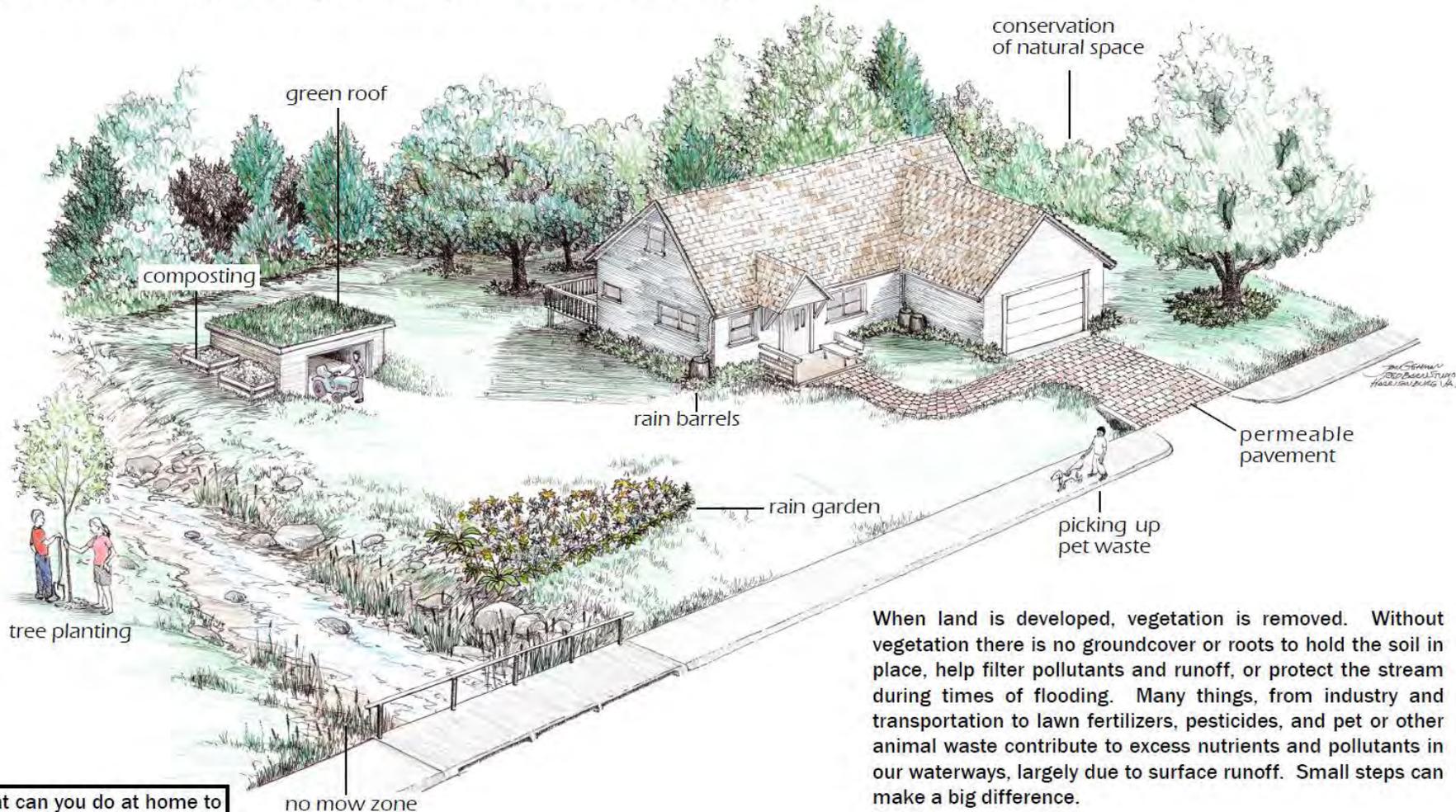


BLACKS RUN: WATER QUALITY AT HOME

You don't have to live next to a stream to help improve water quality.

We all live downstream from someone and someone lives downstream of us.

We depend on each other to make the right choices to protect our water and waterways.



What can you do at home to help improve water quality?

When land is developed, vegetation is removed. Without vegetation there is no groundcover or roots to hold the soil in place, help filter pollutants and runoff, or protect the stream during times of flooding. Many things, from industry and transportation to lawn fertilizers, pesticides, and pet or other animal waste contribute to excess nutrients and pollutants in our waterways, largely due to surface runoff. Small steps can make a big difference.



VA Senate Finance Committee Report

Estimated Chesapeake Bay Watershed-wide **Stormwater Retrofit Cost** = \$9.4 – \$11.5 billion, 2013-2025. Practices in place by 2017 to meet 60% of the necessary pollution reductions.

Estimated Capital Cost of Stormwater Retrofits for Selected Localities:

Locality	Range (\$ in millions)
Fairfax Co.	\$651 to \$845
Virginia Beach	\$323 to \$429
Norfolk	\$280 to \$318
Richmond City	\$159 to \$305
Suffolk	\$109 to \$211
Lynchburg	\$109 to \$201
James City Co.	\$87 to \$149
Isle of Wight Co.	\$40 to \$79
Surry Co.	\$7 to \$13

Extracted estimated costs for City of Harrisonburg:

\$48 to \$80 million through 2025

2013-2025 = 12 years

\$48 - \$80 mil ÷ by 12 years =
\$4 - \$6 million per year

MS4 Program Costs

- Full-time position: MS4 Program Coordinator
- Public Education & Outreach Program and Employee Training
- Illicit Discharge Detection & Enforcement
- Inspections – Outfalls & Stormwater Facilities
- Maintenance of Stormwater Facilities
- Capital Project Costs to meet Chesapeake Bay TMDL special conditions

Total costs unknown at this time. Program elements to be reviewed in forthcoming

“Stormwater Enterprise Fund Feasibility Study”

Potential Revenue Sources

- ✓ Stormwater Utility, User Fee (can charge tax-exempt properties)
- ✓ Stormwater Fund (e.g., increase real estate tax)

- ✓ Plan Review, Permit Fees
- ✓ Revolving Loan Funds/Other Loans
- ✓ Nutrient Trading Program?
- ✓ Special District Tax
- ✓ Grants
- ✓ Bond Financing

How are Other Virginia Communities Funding Stormwater Programs?

Stormwater Utilities	MS4 Permit	Avg. Monthly Fee	Annual Revenue	Population (2012)	Est. Annual Cost Per Capita
City of Norfolk	Phase 1	8.91/month	\$15M	245,800	\$61.03
City of VA Beach	Phase 1	9.61/month	\$32.2M	447,000	\$72.04
City of Portsmouth	Phase 1	9.25/month	\$7.5M	96,500	\$77.72
City of Newport News	Phase 1	8.00/month	\$13M	180,700	\$71.94
City of Hampton	Phase 1	6.41/month	\$6.4M	136,800	\$46.78
City of Chesapeake	Phase 1	7.35/month	\$14.9M	228,400	\$65.24
Prince William County	Phase 1	3.01/month	\$7.1M	430,300	\$16.50
City of Suffolk	Phase 2	5.24/month	\$3.5M	85,200	\$41.07
City of Richmond	Phase 2	3.75/month	\$3.5M	210,300	\$16.64
City of Staunton	Phase 2	3.20/month	\$705K	23,900	\$29.50
City of Lynchburg	Phase 2	4.00/month	\$2.6M	77,100	\$33.72
City of Colonial Heights	Phase 2	2.00/month	\$370K	17,500	\$21.14
Town of Bridgewater	Phase 2	1.00/month	\$65K	5,800	\$11.21
City of Charlottesville	Phase 2	1.20/per 500 sq ft	\$1.6M	44,000	\$36.36
Stormwater Service Districts		Rate on Real Property			
Fairfax County	Phase 1	2 cents on property tax	\$40M	1,119,000	\$35.75
Arlington County	Phase 1	1.3 cents on property tax	\$8M	221,000	\$36.20
City of Alexandria	Phase 2	0.5 cents on property tax	\$1.7M	146,300	\$11.62

Current as of October 2013.

How will Harrisonburg fund stormwater?

- **Stormwater Enterprise Fund Feasibility Study**
 - *Budget.* Develop comprehensive anticipated annual budget for stormwater and MS4 program compliance including, but not limited to, cost for personnel, equipment, and capital improvement projects.
 - *Policies.* Develop policy recommendations for financing.
 - *Scenarios.* Using budget and GIS parcel information, develop enterprise fund scenarios.
 - *Recommendation.* Compiled report of findings, scenario options, and recommendations based on discussions with staff and Stormwater Advisory Committee.

Stormwater Advisory Committee (SWAC)

- Responsibilities:
 - Work with staff to determine viability and structure of a stormwater enterprise
 - Develop Stormwater Management Program Strategic Plan
 - Means for prioritizing programs and projects
 - Performance metrics
 - Identify and recommend needed improvements to existing City Ordinances
 - Be advocates for the city at large and relay public input
 - Engage and educate the public
 - Provide recommendations to and advise City Council accordingly

Stormwater Advisory Committee (SWAC)

- Membership: 12-15 members
 - Residents, civic leagues, homeowners associations.
 - Institutional and tax exempt entities including colleges and churches.
 - Business community including residential, commercial and industrial property owners, malls, and business groups.
 - Professional engineers, real estate developers, and construction contractors.
 - Specialist interest groups that represent economic development, environmental or outdoor recreation.

Next Steps

- Council to establish Stormwater Advisory Committee (SWAC)
 - Staff will bring bylaws to Council in November for adoption
 - Council to appoint SWAC members
- Submission of VSMP program elements to DEQ
 - Staff will present to Council prior to December 15
- City staff and Draper Aden Associates to continue working meeting MS4 requirements, including MS4 Program Plan
 - Meet annual deadlines
- Budget and staffing analysis, FY 14-15 and beyond



Shenandoah River State Park