

Stormwater Changes: Chesapeake Bay TMDL and New Regulations

EPC Briefing
February 4, 2013



Focus of Discussion

- Chesapeake Bay Total Maximum Daily Load (TMDL)
- Municipal Separate Storm Sewer System (MS4) Permit update
- Potential Bay TMDL Reduction Strategies
- New State Stormwater Management Regulations
- Important Stormwater Milestones and Next Steps



Chesapeake Bay TMDL

- Pollution 'budget' or 'diet'
- EPA developed for Six States and DC in December 2010
- Reductions in Nitrogen, Phosphorus, and Sediment
- State Watershed Implementation Plan (WIP)
- MS4 Permit for Enforcement of stormwater retrofits to meet reductions



Municipal Separate Storm Sewer System (MS4) Permit

- Regulates separate storm sewer discharges to surface waters
- 5-year general permit cycles
- Enforcement for Chesapeake Bay TMDL
- Load reductions from unregulated lands not being enforced



Proposed MS4 General Permit Timeline

- Current permit expires June 30, 2013

Schedule

- November 5, 2012 - Published
- January 4, 2013 – End comment
- April 1, 2013 – MS4 application due
- July 1, 2013 – Effective date of Permit
- July 1, 2015 – Bay TMDL Action Plan
- June 30, 2018 – MS4 Permit Expires

MS4 Phased Reductions

Three 5-year MS4 permits to meet Chesapeake Bay TMDL:

Phase I

- 5% by end of next permit (2013 – 2018)

Phase II

- 40% by end of 2nd permit (2018 – 2023)

Phase III

- 100% by end of 3rd permit (2023 – 2028)



Virginia WIP-Phased Required Reductions

Required Pollutant Reductions by Permit Cycle

	N (lbs.)	P (lbs.)	S (lbs.)
Phase I: First MS4 Cycle Target (5%)	380	50	43,097
Phase II: Second MS4 Cycle Target (35%)	2,659	352	301,678
SUBTOTAL PHASE I AND II (40%)	3,039	402	344,775
Phase III: Third MS4 Cycle Target (60%)	4,558	603	517,162
TOTAL REDUCTION (100%)	7,597	1,005	861,937



Phased Reductions Translated to Acres Requiring Treatment

Required Reductions	Acres Requiring Treatment
Phase I: 2013-2018 (5%)	120 - 300
Phase II: 2018-2023 (40%)	962
Phase III: 2023-2028 (100% - Total to Comply)	2405



Potential Bay TMDL Reduction Strategies

Potential Reduction Strategies

“Chesapeake Bay TMDL Compliance Analysis and Options”

- Assumptions and efficiencies may change

Strategies

- Post-2009 Stormwater BMPs
- Projected Urban Redevelopment
- Pond Retrofits and New Ponds
- Retrofits on City Property
- Retrofits of City Rights-of-Way



Post-2009 (to date) Stormwater BMPs

- Required per Chesapeake Bay Ordinance (Env. Mgmt. Ord.)
- Development/Redevelopment
- Not included in baseline TMDL loads
- Count towards TMDL Compliance
- Various mix approved through site plan
- Developer bears the cost

Credit: City of Alexandria



Project Urban Development

- P&Z projections in five-year increments
- Assumed reductions based on new Stormwater Management Regulations
- Developer bears the cost



Source: Crosswalks.com

Regional Stormwater Retrofits and New Facilities

- Retrofit of existing regional wet ponds
- Consideration of one new practical facility
- Aesthetics consideration
- Sensitive to current uses



Retrofits on City Property

- Assumed advanced ultraurban BMPs
- Assumed high removal efficiencies
- Serves small drainage areas
- Untreated properties within the MS4
- Not all appropriate, yet assumed for planning
- High unit cost



Courtesy: City of Alexandria

Retrofits of City Rights-of-Way

- Bioretention practices between road and sidewalk
- Considered on public streets
 - Rout 1 along Potomac Yard
 - Mount Vernon Avenue
 - Route 7 bordering Arlington
 - Van Dorn Street



Courtesy: City of Richmond

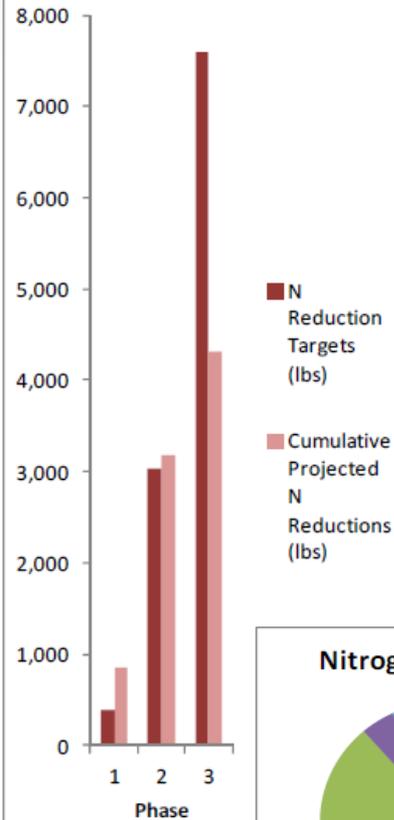


Phased Reduction Using Potential Strategies

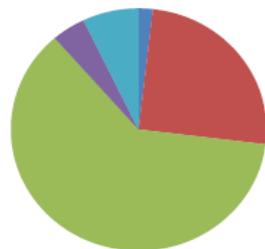
Potential Reductions	Acres	
Phase I (Target 5%)	319	
Phase II (Target 40%)	1,346	
Phase III (Target 100%)	1,744	
Remaining Gap		
Phase I	0	
Phase II	40	
Phase III	621	
	Subtotal Gap	661
	Total Acres to Comply with 100%	2,405

Phased Reduction Strategies

Nitrogen

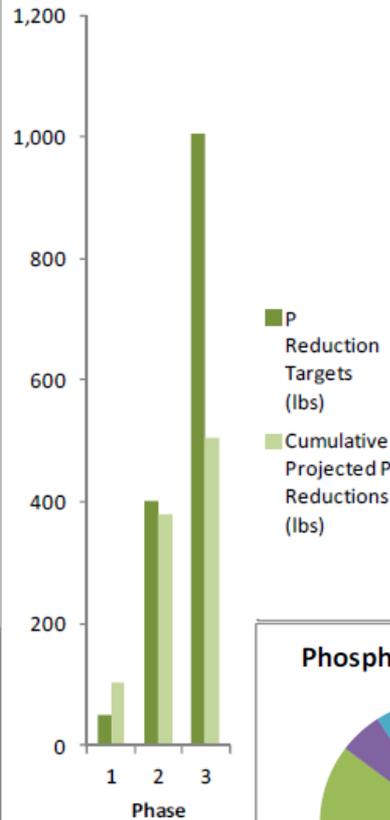


Nitrogen Reductions

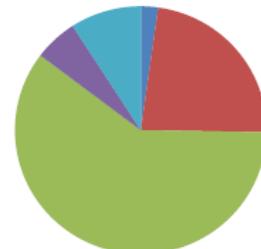


- BMP Geodatabase (Post-2009)
- Redevelopment
- New Ponds and Pond Retrofits
- Urban Right-of-Way Improvements
- Opportunities on City Property

Phosphorus

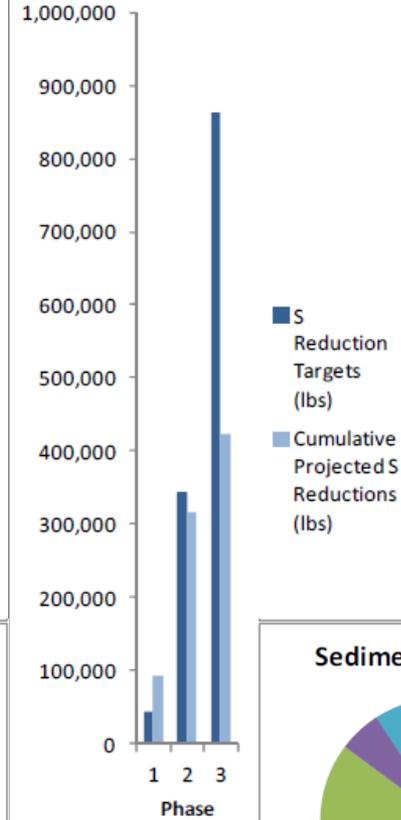


Phosphorus Reductions

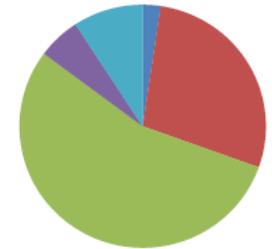


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Sediment



Sediment Reductions



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- Redevelopment
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New State Stormwater Management Regulations



New Stormwater Regulations: Highlights of the Changes

- Water Quality Criteria
- Water Quantity Criteria
- Local Stormwater Management Programs
- General Impacts to Development
- Timeline



Stormwater Regulations: Water Quality Criteria

- More aggressive
- Runoff Reduction Method
- Phosphorus - New Construction : 0.41 lbs./ac/yr. (comparable to an undeveloped site)
- Redevelopment – More aggressive (doubles P reduction for sites >1 ac)
- Treatment volume: Site \times 1" \times composite runoff index



Stormwater Regulations: Water Quantity Criteria

- Volume-Based Hydrology
- Past based on peak flows, new criteria based on mimicking predevelopment volumes



Stormwater Regulations: Local Stormwater Program

- Delegates authority for program administration, plan approval, inspections, compliance enforcement and fee collection
- Remit 28% of fees collected to DCR
- Compliance with VSMP General Permit
- DCR still issues Construction General Permit
- Locality may not implement prior to July 1, 2014



Stormwater Regulations: Development Impacts

- Bigger, more expensive BMPs
- Retain more stormwater onsite
- Use of LID & BMPs – green roofs, infiltration techniques, cisterns, permeable pavement
- Potential fee increases for submittal
- Offsite compliance



Stormwater Regulations: Timeline

- April 1, 2013 – Draft Ordinance to DCR
 - “Substantial Progress” Local Program application
- Fall 2013 – Community Outreach
- Early 2014 – Ordinance Changes and City Council adoption
- Before July 1, 2014 – Final Application
- July 1, 2014 – Effective date



"Substantive Progress" Application

- Initial Stormwater Local Program Application
- Due to DCR no later than April 1, 2013
- Request for year extension to July 1, 2014 (DCR encourages; others concur)
- Components (Draft, not approved)
 - Draft Stormwater Management Ordinance
 - Draft Funding and Staffing Plan
 - Roles and Responsible Parties



Important Stormwater Milestones and Next Steps



Some Important Milestones to Address

- April 1, 2013 – Local Stormwater Program “Substantive Progress” Application
- July 1, 2013 – New MS4 Permit
- April 1, 2014 – Final Application to DCR
- July 1, 2014 – Implement SW Program
- June 2014 to 2018 – MS4 Updates
- June 30, 2018 – Meet 5% TMDL



Next Steps

City's Internal Stakeholder Groups

- Created Steering Committee
- Created Stormwater Workgroup
- Create functional Subgroups based on milestones and big issues

Community Outreach

- Summer/Fall 2013