

# Chesapeake Bay TMDL: Phase II WIP Process Update

Presented to  
Hampton Roads Regional Steering Committee  
January 5, 2011



# Virginia's Draft Phase II WIP

- Virginia requested individual Wasteload Allocations (WLAs) for Virginia Phase I MS4s be removed from the TMDL and replaced with aggregate WLAs by segmentshed.
- Chesapeake Bay Watershed Action Plans will be required by MS4 permits.
  - ❑ Permittees will have 3 permit cycles to comply with load reductions to meet L2 implementation levels for non federal lands.
  - ❑ Achieve 5% reduction from 2009 Progress Loads in first permit cycle.



# Virginia's Draft Phase II WIP

- Federal lands required to achieve L3 implementation level.
- No mention of strategy to achieve load reductions on unregulated urban lands.
  - ❑ Makes up 64-78% of urban load reductions statewide.
  - ❑ Makes up 6-7% of total load reductions statewide.
  - ❑ 18% of developed lands in HR are unregulated.
  - ❑ Unregulated developed lands are 7.5% of total land area in HR.
- No quantification of nutrient reduction due to Virginia's recently adopted Fertilizer Restrictions.



# HRPDC Phase II WIP Schedule

- January 10 – Comments on Draft Regional Appendix narrative due to HRPDC staff.
- January 12 (noon) – HRPDC staff will send final draft Regional Appendix narrative and preferred scenario to Regional Steering Committee.
- January 17 – Final comments on Regional materials due to HRPDC by 9am. HRPDC staff will distribute final materials to Commission members by 3pm.
- January 19 – HRPDC staff will present Regional Appendix to the Commission for approval.
- January 23 – HRPDC staff will send final Regional Appendix to localities.
- February 1 – Locality staff will submit Local reports with Regional Appendix to DCR.



# HRPDC Staff Deliverables to Localities

- Calculation of VAST output using exact data submitted by localities to HRPDC.
- Calculation of gap between locality preferred scenarios and Phase I WIP.
- Description of methodology and assumptions used to fill the gap.
- Calculation of final Regional Preferred scenario including assumptions for additional reductions.
- Description of any gap between the Regional scenario and the Phase I WIP level of effort.



# Default Scenario for Urban Stormwater

Land Use Category	Practice Description	Level 2 Practice % Coverage	Effective Net Reduction Prorated Over Entire Land Use Category Acreage		
			N	P	Sediment
Impervious Urban High and Low Intensity	Impervious Cover Reduction	7.5%	0%	5%	6%
	Filtration Practices	7.5%	3%	4%	6%
	Infiltration Practices	8.0%	6%	7%	8%
	<b>Total</b>		<b>9%</b>	<b>16%</b>	<b>20%</b>
Pervious Urban High and Low Intensity	Impervious Cover Reduction	-			
	Filtration Practices	5%	2%	3%	4%
	Infiltration Practices	5%	4%	4.25%	4.75%
	<b>Total</b>		<b>6%</b>	<b>7.25%</b>	<b>8.75%</b>



# Chesapeake Bay TMDL: Review of Draft Regional Narrative

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# Regional Component of Narrative

## Chapter 1: Regional Approach to WIP

- ❑ Qualifications and Conditions

## Chapter 2: Regional Engagement

## Chapter 3: Regional Framework

- ❑ Describe assumptions by sector.

## Chapter 4: Strategies: preferred BMPs in VAST and Alternative BMPs

- ❑ List of Alternative BMPs -request State and EPA add then to model.

## Chapter 5: Implementation Challenges and Proposals

- ❑ Research and Model revisions
- ❑ Policy
- ❑ Funding



# Narrative Issue #1: Qualifications/Conditions

- Basin-level scenarios represent aggregate information for the Hampton Roads region. The information is not representative of local government commitments and should not be interpreted to constitute local-level actions, planning efforts, or future programs.
- Any attempt to interpret or distribute the aggregate information contained herein across Hampton Roads localities or at any scale smaller than the James and York River basins would result in false conclusions and misrepresentation of local information.
- Basin scenarios cannot be implemented by 2025 without research to support alternate BMPs, State policy changes, and new funding sources.



# Narrative Issue #2: Assumptions/Expectations

## Virginia and EPA programs:

- **All:** Virginia and EPA will manage and fund nutrient reductions on State and federally owned property.
- **Wastewater:** Virginia will implement nutrient reductions for wastewater and industrial point-source discharges through the VPDES permitting process and permit conditions; future facility permits will be consistent with the Phase I WIP.
- **Septic:** Virginia will enforce septic system pump-out requirements and require retrofits for failing systems.
- **Septic:** Virginia will provide funds and administer cost-share programs to encourage septic system upgrades for denitrification.



# Narrative Issue #2: Assumptions/Expectations

## Virginia and EPA programs:

- **Air:** To reduce nutrients contributed by air deposition, EPA will implement nutrient reductions through the Clean Air Act regulatory programs; future permits will be consistent with the Phase I WIP.
- **Ag:** Virginia, through the Soil and Water Conservation Districts, will encourage reductions through outreach activities and cost share programs.
- **Ag:** Agricultural nutrient reductions may also be implemented through the purchase of credits via Virginia's expansion of the nutrient credit exchange program.



# Narrative Issue #2: Assumptions/Expectations

## Locality programs:

- **Urban:** Local governments will implement urban sector nutrient reductions on publicly-owned land and encourage voluntary nutrient reductions on private property.
- **Urban:** Additional nutrient reductions will be required for redevelopment projects, as required by Virginia's stormwater regulations.
- **Septic:** Localities will require septic system conversions and connections to the municipal sewer system in limited areas, to the extent of local authority.



# Narrative Issue #3: Alternate BMPs

- Air deposition – what happens if power plants open or close? Would reducing vehicle miles count?
- Removing sediment behind dams? And land that drains to reservoirs that rarely discharge. If land purchased for SWAP is forest, should LG get credit – how?
- SSOs/Illicit discharges
- Oyster Restoration/Reefs
- Harvested wetlands
- No Discharge zones
- Effectiveness of education programs (especially pet waste)
- Green Street retrofits
- BMP upgrades/enhancements
- BMP conversion
- Trash removal
- Catch Basin cleaning
- Storm Drain vacuuming
- Leaf Recycling
- Shoreline Erosion Control – using Urban Stream Restoration in VAST
- Outfall stabilization
- Stream Buffers
- Wetland restoration
- Urban tree canopy – formalize #trees=acres



# Narrative Issue #4: Research/modeling needs

- Water quality monitoring in Coastal Virginia to estimate urban loads.
  - ❑ Estimate loading rates and ratio of N, P, sediment
  - ❑ Evaluate impact of extreme events
  - ❑ Better analysis of most effective locations for BMPs.
- Revise segmentsheds in each basin to reflect hydrodynamics.
- Process for including local landuse data into 2017 model calibration.
- State needs to establish data requirements, format for data reporting, and schedule for TMDL milestones.
- Evaluation of BMPs effectiveness for nutrient and bacteria removal.
- Evaluation of BMPs effectiveness for nutrient removal and flood control.



# Narrative Issue #4: Policy needs

- Expand the Nutrient Credit Exchange program;
- Expand the Chesapeake Bay Preservation Act (CBPA);
- Provide permit controls for stormwater runoff from currently unregulated urban lands.
  
- Define and encourage redevelopment (economic development grants);
- Encourage stormwater reuse;
- Partner with non-governmental organizations (NGOs) to promote private property retrofits (credit in permits);
- *Encourage/require septic upgrades.*
  
- Extend implementation schedule for TMDL and/or Special Order of Consent for Sanitary Sewer System Overflows (to reduce fiscal stress on localities or provide federal funding for implementation)



# Narrative Issue #4: Funding needs

- Continue State funding for Agriculture BMP cost-share programs.
- Provide State funding for on-site wastewater/septic system upgrades.
- Provide State funding to implement regional BMPs (examples?)
- Provide State and Federal funding and staff to address initiatives for research and model revisions
- Provide State funding and staff to address initiatives for policy support



# Chesapeake Bay TMDL: Review of Preferred Scenario Data Submitted to HRPDC

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Locality	Baseline BMP Data	Landuse Correction	Preferred Scenario	Local Strategy	Comment
Chesapeake	Yes	No	No	No	email on 12/28 indicated that corrected landuse and BMP data would be submitted the week of 1/2/12. Not sure about VAST scenario.
Hampton	No	VAST file	Yes, VAST input	No	BMP baseline data at the end of January.
Isle of Wight	Yes	Yes	Yes, acres treated	Yes	
James City	public VAST scenario	in VAST	Yes, VAST scenario	Yes, used DCR template	input of corrected baseline BMP information indicates that current BMPs meet the 2025 goal without updated landuse input.
Newport News	draft URS report does not include acres treated	Yes	No	No	email on 12/28 indicated BMP strategies would be forthcoming.
Norfolk	Yes	No	acres treated and levels	No	email on 12/28 indicated that the City was still comparing landuse data and would submit later.
Poquoson	yes	yes	No	no	still working on crunching numbers for preferred scenario.
Portsmouth	yes	yes	acres treated and levels	no	
Suffolk	Yes	yes	acres treated and levels	no	
Surry	Yes		Yes		
Virginia Beach	yes	yes	Yes, VAST input	yes	
Williamsburg	yes	yes	levels	no	
York	yes	yes	levels	no	landuse data is not in usable categories, BMP data needs to be aggregated by category.



# Reviewing Local Data Now

- Getting all data into same format.
- Evaluating most popular alternative BMPs.
- Determining if preferred scenario include corrected baseline BMPs.
- Will be contacting localities Friday/Monday to clarify any outstanding questions.



# General Method for Data Consolidation

- Create 2011 Progress Scenario based on locality edits
  - ❑ Urban- Use only corrected data received from localities and 2005 Progress level provided by DCR.
  - ❑ Agriculture – Use 2010 Progress scenario in VAST and edit to account for corrections provided by localities with Ag updates.
  - ❑ Septic – Use 2010 Progress as base, then edit with locality data.
  - ❑ Other land uses – Use 2010 Progress levels.
- Calculate Gap Between HR 2011 Progress and Phase I WIP.



# General Method for Data Consolidation

- Use 2011 Progress and locality submitted preferred scenarios to update the Phase I WIP BMP levels.
  - ❑ Urban – If no preferred scenario, then no BMPs; if levels then normalize to BMP percentages in WIP I.
  - ❑ Ag – Use 2011 Progress scenario plus any locality strategies.
  - ❑ Septic – 2011 Progress plus locality data
- Calculate difference between WIP I and sum of locality preferred scenarios in terms of edge of stream pounds of N,P, and sediment.



# General Method for Gap Filling

1. Estimate pollutant removal of applying L2 for urban on State lands.
2. Estimate pollutant removal of Sanitary Sewer improvements.
3. Estimate reductions due to stormwater regulations for re development.
4. After doing 1-3, will calculate gap again.



# Gap Filling Continued

5. Fill remaining gap by looking at most popular proposed BMPs across preferred scenarios that can be simulated in VAST and iteratively increase implementation across Region.
  - a) Increased street sweeping
  - b) Catch basin cleanouts
  - c) Leaf collection
  - d) Shoreline stabilization
6. If gap remains, then try to estimate load reductions for BMPs in preferred scenarios that cannot currently be simulated in VAST.



# HRPDC Assumptions

- Only evaluating loads and reductions from non federal lands.
- Definition of Implementation Levels
  - ❑ High = Average Regional Phase I WIP treatment level.
  - ❑ Medium = greater than half WIP I level.
  - ❑ Low = less than half WIP 1 level.
- Calculate percent treatment based on VAST landuse.



# Decision Points

- If no baseline BMP data, then use zero or DCR progress levels?
  - Urban
  - Ag
  - Septic
- If no preferred scenario, then zero or Phase I WIP?
  - Urban
  - Ag
  - Septic
- Estimate reductions of private property BMPs?
- How to deal with landuse differences between VAST and local data?

