Overview of Chesapeake Bay WIPs in Metropolitan Washington Region

Presentation to
Water Resources Technical Committee
Sept. 10, 2010

Metropolitan Washington Council of Governments

Today's Focus

- Nature and content of the Phase I WIPs
  - Maryland
  - Virginia
  - District of Columbia
- Potential implications for COG members
  - Wastewater
  - Stormwater
- Frame discussion for October 4th Work Sessions

TMDL-WIP Schedule In Brief: 2010

- September 1 - Draft Phase I WIPs to EPA
- September 24 - Draft TMDL due
  - Begins 45-day comment period
- October 4 – COG Work Session for WRTC & CBPC
- November 29 – Final Phase I WIPs to EPA
- December 31 – Bay TMDL due

EPA TMDL Public Meetings

- 9/29 –DC (1:00-3:00)
- 10/5 –Annandale, VA (6:00-8:00)
- 10/7 –Webinar (1:00-3:00)
- 10/12 –Annapolis (2:00-4:00)
- 10/14 –Hagerstown (2:00-4:00)

Web Link for More Information:
http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/index.html

Maryland Draft Phase I WIP Overview

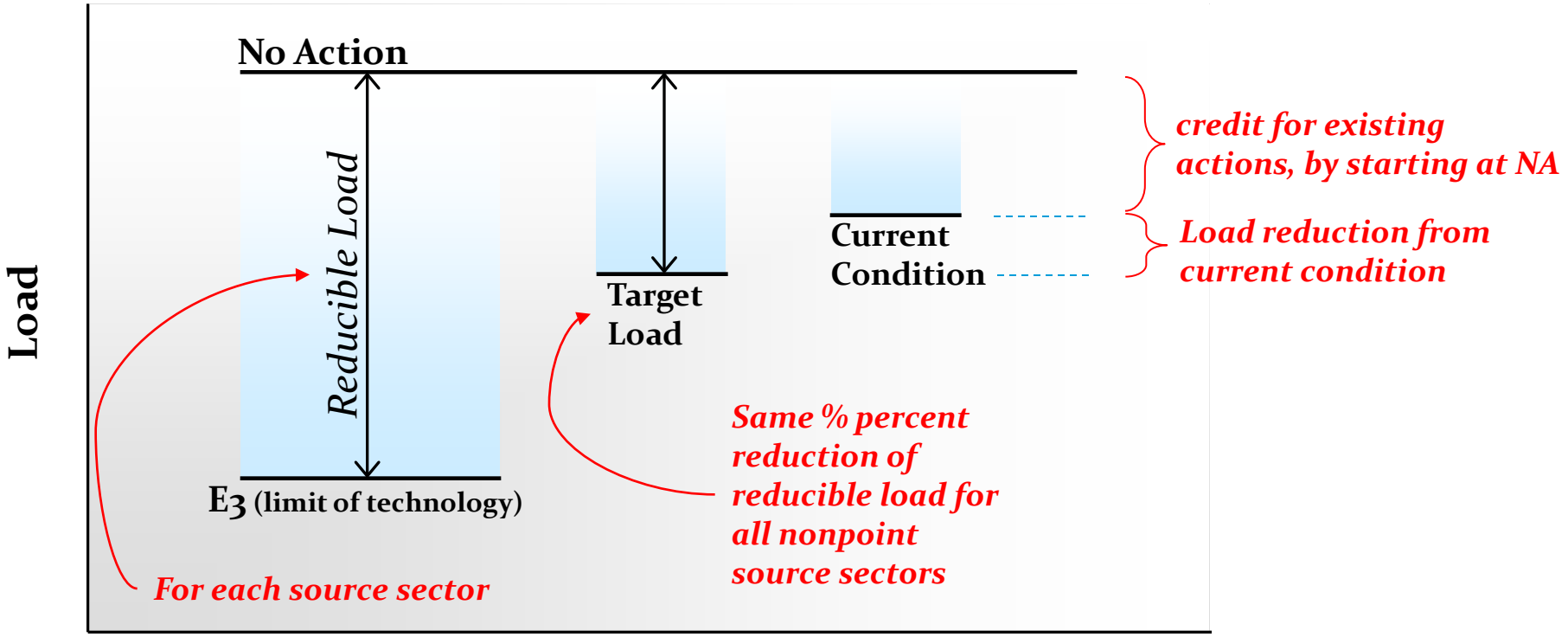
- Statewide approach
  - Source sector allocations; proposed allocations not broken out by segment-sheds
  - Segment-shed allocations not yet available (waiting for CBP model output)
- Identify two (Maryland-only) targets
  - 70% interim target by 2017 (not 60 %)
  - 100% target by 2020 (not 2025)
- "Gap Analysis" is heart of document
  - 75 expanded current/proposed new actions to close 2017 gap from "current capacity"
  - Basis for meeting additional load reductions from 2017 – 2020
- Focus on nutrients (primarily nitrogen)
  - Achievement of sediment allocations assumed by nutrient reduction actions

MD WIP - Allocation Considerations

- Allocation numbers based on CBP modelling results, input deck submitted by MDE
- Allocation among sources affected by various decisions
  - Major WWTPs allocations based on ENR cap agreements
  - Loading rates and capacity assumptions for minor facilities, industrial dischargers
  - Use of relative effectiveness in how nutrients are delivered to main Bay "global segments"
  - "Equity" among other sources (ag, urban and septcis)

Maryland's Approach to Equity

A → B → C



Based on MDE WIP proposal to Anne Arundel – July 09

MD Preliminary source sector allocations

Total Nitrogen - By Sector			
Sector	**2009 Progress**	**Final Target Load**	**% Reduction from 2009 Progress**
Urban Regulated	5.098	4.099	20%
Urban Non Regulated	0.551	0.459	17%
Agriculture	17.713	13.603	23%
CAFO	0.080	0.079	0%
Septic	4.007	2.479	38%
Forest	7.133	7.133	0%
Air	0.691	0.686	1%
WWTP & CSO	14.148	10.547	25%
Total	**49.421**	**39.086**	**21%**

MD Preliminary source sector allocations

Total Phosphorus - By Sector			
Sector	**2009 Progress**	**Final Target Load**	**% Reduction from 2009 Progress**
Urban Regulated	0.581	0.386	34%
Urban Non Regulated	0.091	0.056	38%
Agriculture	1.364	1.200	12%
CAFO	0.007	0.005	29%
Forest	0.349	0.349	0%
Air	0.041	0.040	2%
WWTP & CSO	0.871	0.679	22%
Total	**3.304**	**2.715**	**18%**

MD Preliminary source sector allocations

Total Suspended Solids - By Sector			
Sector	**2009 Progress**	**Final Target Load**	**% Reduction from 2009 Progress**
Urban Regulated	382	242	37%
Urban Non Regulated	18	9	48%
Agriculture	787	703	11%
CAFO	0.11	0.04	65%
Forest	191	191	0%
WWTP & CSO	8	77	-879%
Total	**1,387**	**1,222**	**12%**

Maryland Gap Analysis

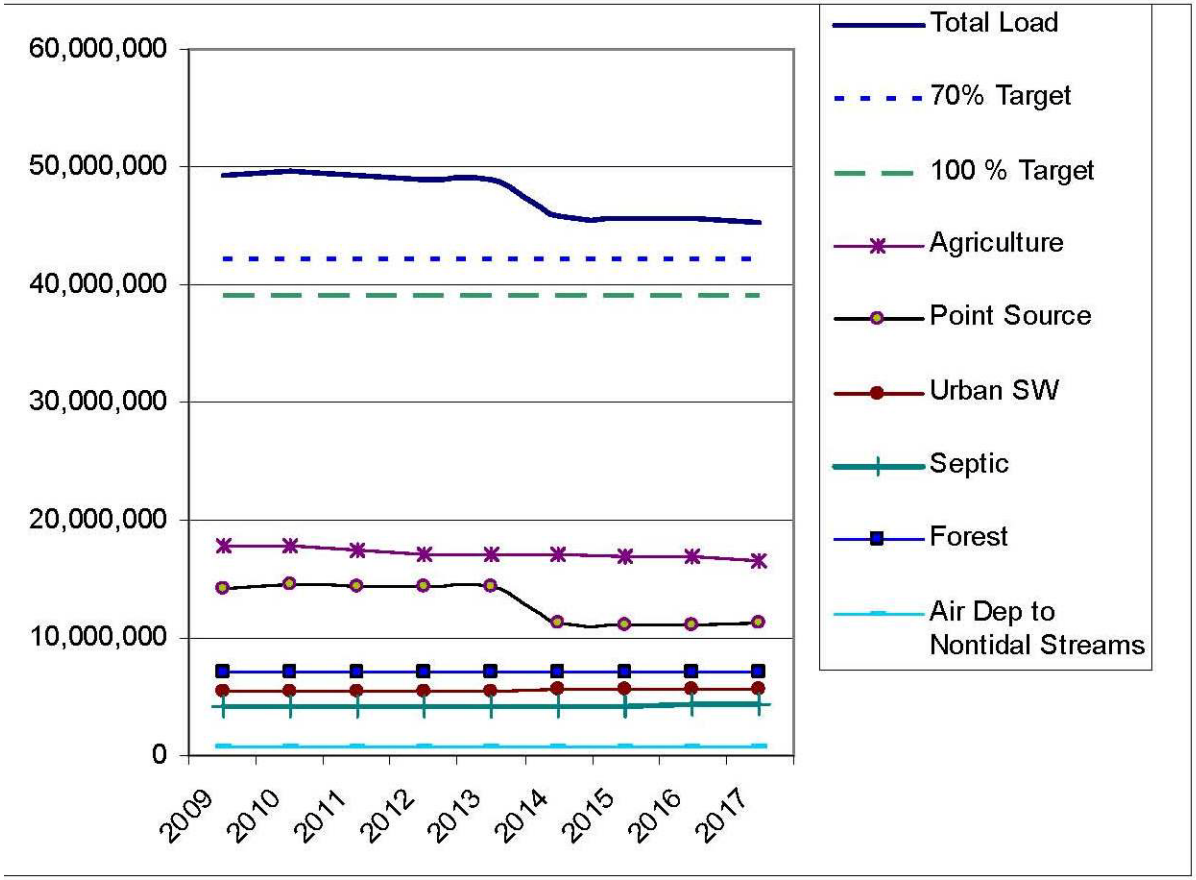
Table 4.2 Nitrogen Key Statewide Gap Analysis Results

Summary Values (million lbs/yr)	Delivered	EOS
A. Baywide Target	187.44	258.90
B. Statewide Target	39.09	53.99
C. 2009 Baseline Load	49.42	68.20
D. 2017 70% Goal	42.19	58.22
E. Total Reduction Needed to Final Target (C-B)	10.33	14.21
F. 2017 Reduction Needed (C -D)	7.23	9.98
G. 2017 Current Capacity Reduction	3.85	5.31
H. 2017 Remaining Reduction Gap (F - G)	3.39	4.68
I. 2017 - 2020 Reduction Need	3.07	3.99
J. Total Remaining Gap (H + I)	6.46	8.14

Mostly denominated in nitrogen (most difficult to achieve)

MD WIP Gap Analysis – Projected TN Reductions

Most of "current capacity" load reductions from 2012-2017 due to WTTP ENR implementation; gap reflects need for more reductions from other sectors



Wastewater projections based on existing ENR agreement schedule
Ag projections based on extending 2-year milestone reductions into future
Urban projections based on extending past performance of MS4 communities
Analysis accounts for future growth in loads, e.g., septics

Maryland WIP Gap Analysis

- Gap analysis designed to achieve interim 2017 target (TN reductions needed = 7.22 million pounds)
- Proposed options (gap closers) from all sectors exceed this gap (total = 9.48 million pounds)
  - Gap closers could be used to meet additional TN reduction needs post 2017
- Public comment will inform gap closers identified in final plan
- No cost data provided for options, although funding sources noted
- Not completely clear how load reductions were determined (CBP watershed model input deck), but these will be adjusted with updated watershed model results

Maryland WIP Gap Analysis

- Plan details 75 current actions that could be expanded or new actions that could be implemented
  - WWTP – 9
  - Urban stormwater – 11
  - Agriculture – 34 (20 current and 14 new)
  - Also air, septic and various "natural filter" practices such as wetland restoration
- Need for offsets - ?
  - Estimated reductions from urban stormwater gap closers total about 750,000 pounds / total target reduction for urban sector is about 1 million pounds
  - Even bigger gap for septics sector

Maryland WIP – Accounting for Growth

- For WWTP point source loads,
  - Based on excess provided by current capacity (to 2010 design flows)
  - ENR
  - Compare per capita vs. for septic (5x more than at WWTPs)
  - Trading Program
- For loads from new development (including new septics),
  - Based on combination of no net increase (meeting forest loading rates) from urban runoff and offsets (trading)
  - State proposing elaborate system to direct growth to existing developed areas ("high per capita loading areas")
  - Growth outside these areas would require offsets at increasing rates
- Proposes to develop Phase II trading policy and offset policy

Maryland WIP – Urban Stormwater

- Out of 10 total gap closers, 2 major areas of emphasis: retrofits and nutrient management
- Various retrofit options projected to achieve reductions of about 61,000 pounds TN/year (305,000 pounds by 2017)
  - No new funding sources noted; not clear whether offsets or trading could apply to these reductions
- Taking credit for existing nutrient management projected to "reduce" 385,000 pounds of nitrogen by 2017

Maryland WIP – Urban Stormwater Retrofits

- Retrofits for Phase I permittees
  - Option 1 – all Phase I MS4s achieve **30** % retrofit of older untreated areas by 2017 interim deadline (this appears to be current policy – in Montgomery permit and Frederick draft permit)
  - Option 2 -- all Phase I MS4s achieve **40** % retrofit
  - Option 3 -- all Phase I MS4s achieve **50** % retrofit

  (*note – document discusses potential need for up to 70 % retrofit post 2017 "if strategies fall short of the goal")
- Retrofits for Phase II permittees -- all Phase II MS4s achieve **20** % retrofit
- Retrofits for non-MS4 urban areas – extend MS4-type permits to smaller urban areas to achieve **20** % retrofit

Maryland WIP Urban Stormwater - Other Actions

- WIP also proposes set of smaller-scale, less-documented practices
  - Refined urban nutrient management – increasing scope of lands covered
  - Regenerative stormwater conveyance – achieving connections to flood plain
  - Rural residential tree planting
  - Forest Conservation Act enforcement
  - Urban tree canopy requirements
- Unlikely to achieve major nutrient reductions

District of Columbia Draft Phase I WIP Overview

- District is Unique
  - Both a local government & has a direct role in CBP's process/member of PSC/ CBP Partner
- Able to meet TN & TP interim & final target loads by deadlines; not able to meet TSS final target load
- Estimate able to achieve 60% of TSS target load by 2017, but not 2025 target load
  - Even with aggressive restoration – given ultra urban setting
  - Need further discussion with EPA to address situation
- Load Details
  - By Sub-sheds (i.e., 4 TMDL segments)
  - Acknowledge input from watersheds outside District boundaries

District of Columbia Draft Phase I WIP Overview

- Point Sources
  - WWTP – Blue Plains
    - Loads reflect District shares only
    - Appear generally consistent with loads negotiated with DC Water
    - Explicit Growth set-aside for Blue Plains, as no load growth expected from other sectors
      - Reflects projections only through 2030
    - Given flow contributions from outside District, document that if flows transferred out of Blue Plains the associated loads would go with them
  - CSOs – Approved LTCP
  - WAD – Sediment Loads

Virginia Draft Phase I WIP Overview

- Statewide approach
  - Source sector allocations; proposed allocations not broken out by segment-sheds
  - Segment-shed allocations not yet available (waiting for CBP model output)
- Targets – As percentages of total nutrient and sediment reductions
  - 2009 Progress loads to 2025 Load Allocations
    - 5% for 2011, 10% for 2013, 20% for 2015, and 25% for 2017 resulting in meeting a total 60% loading target by 2017.
  - Remaining Milestone Periods – After 2017 through 2025
    - Anticipate targeting 10% of total nutrient and sediment reductions per milestone period
- Serious Issues/Concerns Noted in Preamble & Text
  - Concerns clearly noted about the process, cost, legality, allocations, and compressed timing in the development of this plan
  - Serious economic challenges – critical need for federal funding
  - Concern with accuracy of WSM at local scale
  - Need for flexibility/adaptive management
  - 'James River is a special case'
- Focus on nutrients (primarily nitrogen)
  - Achievement of sediment allocations assumed by nutrient reduction actions

Virginia Draft Phase I WIP Overview

- Various Stakeholder Advisory Groups / Input Process (e.g., COG members, VAMWA)
- Have used & need to fully utilize/expand (to include stormwater) Nutrient Credit Exchange Program
- Potomac Basin Loads
  - Portion of the TP allocation is transferred to the TN allocation using 1:5 ratio [removed 73,000 lbs/yr from TP]
  - Focus on Aggregate Waste Loads
  - Wastewater - Continue to rely on:
    - Water Quality Management Planning Regulation (9 VAC 25-720) and
    - Chesapeake Bay Watershed General Permit Regulation (9 VAC 25-820)
    - Permitted Design Capacity
  - CSOs (e.g., ASA and City of Alexandria contributions)
    - Approved LTCPs – Significant work with CBPO – details still to be worked out

Virginia WIP - Accounting for Growth

- WWTP Point Source Loads
  - WLAs for significant facilities - set at 2010 design capacity
  - WLAs have some built-in growth allowances, being based on total design flow and concentrations that are in most cases less stringent than the current limits of technology.
  - Recent review of Chesapeake Bay Watershed General Permit compliance reports:
    - Sufficient nutrient credits expected to be available over next 5 to 10 years
    - Due to combination of municipal plants currently using only about 65% of their design capacity and several plants being upgraded with NRT that exceeds the performance basis of their WLA

WIP wrap-up

- EPA's draft TMDL due to be released Sept. 24; public comment period Sept. 24 – Nov. 8
- WRTC/CBPC special session Oct. 4 to consider COG comments
- Issues to consider
  - Scope of comments (i.e. TMDLs, WIPs)
  - Flexibility
  - Funding and cost efficiency
  - Equity

What's Next

- COG staff to prepare package of WIP info for CBPC
- Submit technical questions to MD, VA
- Share information with other local government groups
- Analyze TMDL document ahead of Oct. 4 meeting