Chesapeake Bay
EPA TMDLs & State WIPs:
Implications for Local Governments

Presentation to
Water Resources Technical Committee and
Chesapeake Bay and Water Resources Policy Committee
October 4, 2010

Metropolitan Washington
Council of Governments

Today's Focus

- Staff Briefings
  - TDMLs & WIPs – Schedules & Scope
  - EPA Bay TMDL (analysis to-date)
    - Key Features
    - Allocations
  - 'State' WIPs – MD, VA & DC
  - Bay TMDL – WIP Evaluations (by EPA)
    - Federal 'Backstop' Measures
  - President's Executive Order (key issues for COG region)
  - Potential Implications for COG Members
    - Urban stormwater examples
- Committee Discussion
  - COG Comments – Policy Themes
  - WRTC Recommendations
  - Potential Action - by CBPC &/or COG Board

Schedule for Bay TMDLs & WIPs

2010

- July 1, 2010 – EPA issued Draft TMDL Allocations
- September 1 - States/District issued Phase I WIPs
- September 24 - EPA issued Draft Bay TMDLs
- September 24 – November 8 – Public Comment Period

  (for TMDLs & WIPs)
  - October 4 – COG Special Sessions for WRTC & CBPC
  - October 13 – COG Board Meeting
- November 29 – Final Phase I WIPs to be Submitted
- December 31 – Final Bay TMDLs to be Issued

Schedule for Bay TMDLs & WIPs

2011

- EPA to issue potentially revised TMDLs - Based on refined Watershed Model
- Phase II WIPs to be Submitted - Loads to be sub-allocated to local (county) levels

2017

- Phase III WIPs to be Submitted
- 60% of WIP Implementation to be Achieved
- EPA to formally assess implementation progress

2020

- Maryland expects to achieve 100% WIP Implementation

2025

- 100% of WIP Implementation to be Achieved Bay-wide

Scope of Bay TMDLs

- Issued by EPA
  - Establishes major CWA regulatory framework, permit constraints, etc.
- Unprecedented scale
  - ~ 300 pages, ~ 17 Appendices
  - 6 states/District
  - 64,000 square miles
  - 92 tidal segments
- Establishes a Total Daily Maximum Load (TMDL) or *'Pollution Diet'*
  - 60% of implementation to be achieved by 2017
  - 100% of implementation to be achieved by 2025

NOTE: Other TMDLs - Exist, or have recently been/will be issued *(e.g., Anacostia-trash, local streams-bacteria)*

Scope of Bay TMDLs

- Individual TMDLs (i.e., Load Caps) for each tidal segment
  - Nutrients (Nitrogen & Phosphorus)
  - Sediment
  - Loads allocated for source sectors (e.g., agriculture, air, stormwater, wastewater)
- Wastewater plants:
  - 'Wasteloads' (WL) listed explicitly (Table 9.4)
  - Include WLs for Nitrogen, Phosphorus, & Sediment
  - Wastewater loads for some facilities are sub-allocated to different segment -sheds (e.g., Blue Plains – 5 segment-sheds; Mattawoman – 3 segment-sheds)
  - Need further examination of splits, rationale, & if/how WWTP vs. county-level sub-allocations will be addressed in Phase II WIPs

Scope of WIPs

- States/District
  - Each responsible for preparation
  - Must also submit 2-Year Milestone Reports
- Phase I – Identifies State-level plans/actions
- Phase II & III – Will identify local (county) level plans/actions
- Must define implementation practices to account for each source sector, and how necessary reductions are to be met & maintained within the load caps

Key Features of Bay TMDLs

- **Draft Allocations**
  - By State/District (e.g., Maryland, Virginia, District)
  - Major Tributary Basins (i.e., Potomac River)
  - Same as the Target Load Allocations (issued 7/1/10)
  - Includes EPA obligations for explicit Nitrogen Reductions
    - Based on implementation of federal air regulations
  - 5% Temporary Reserve – Set-aside load defined for each State/District
- **Reasonable Assurance & Accountability Framework**
  - Includes 2-Year Milestone reporting
  - Potential for additional federal action

Key Features of Bay TMDLs

- **Margin of Safety**
  - Assumed to be implicit given models, water quality standards, & other TMDL assumptions
- **Growth**
  - Not accounted for beyond 2010 – except for wastewater plant permitted capacity
  - Up to States/District to define how growth is to be addressed in WIPs
- **Air Deposition**
  - 15.7 Mlb to be achieved by 2020 due to federal regulations - EPA responsibility
  - Recent air quality regulations & newer modeling of controls are NOT accounted for (noted at Sept. 28th state air quality meeting w/ EPA)
    - Not sure of actual impact to loads, but need to pursue/further evaluate implications

Key Features of Bay TMDLs

- **Climate Change**
  - To be addressed formally in 2017 reassessment
- **Federal Lands**
  - Only 5% Bay-wide (but 30% in District)
  - Federal commitments cited in President's Executive Order (but is it occurring?)
- **Recognition of Need for Offsets, Support for Water Quality Trading**
- **Future Modifications -** Adaptive Management / Phased Approach
  - But, only two options noted that might result in changes in TMDLs:
    - 'State' exchanges of loads across tributaries – if local & Bay water quality standards still met
    - Modifications of Watershed Model Phase 5.3 – if required
- Changes in Modeling Assumptions - IF supported by Monitoring Data
  - Susquehanna River Dam (sediments)
  - Filter Feeders

Draft TMDL Allocations - by State/Major Tributary Basins

Notes:

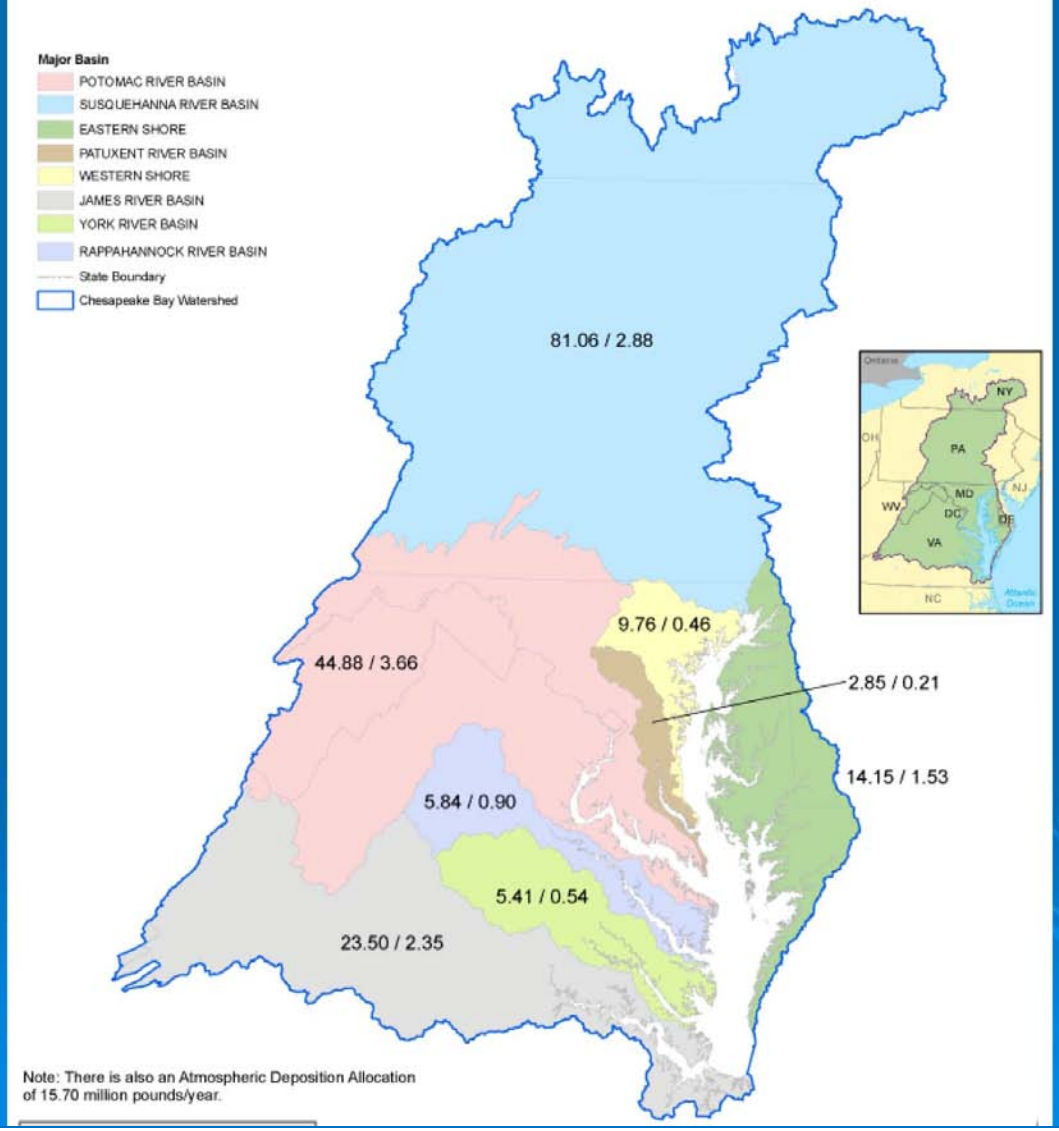
1) *Loads are same as Target Loads (7/1/10);*
2) *This table does NOT include the 5% Temporary Reserve Loads set-aside for each State;*
3) *Loads are further sub-allocated to all 92 tidal segments; and*
4) *~24-25 segments apply to COG region.*

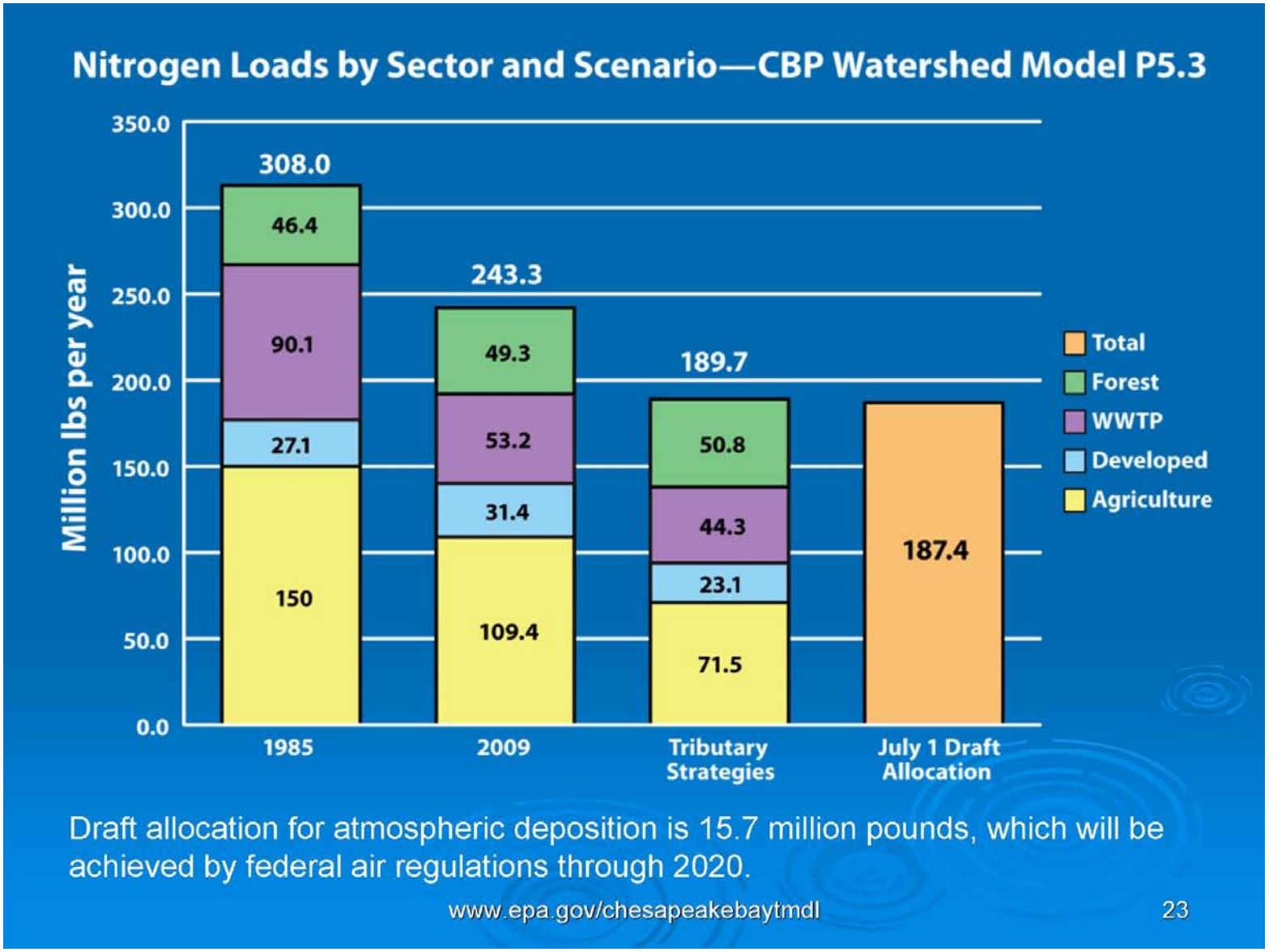
Table ES-1. Chesapeake Bay TMDL watershed nutrient and sediment draft allocations by jurisdiction and by major river basin [proposed standards]

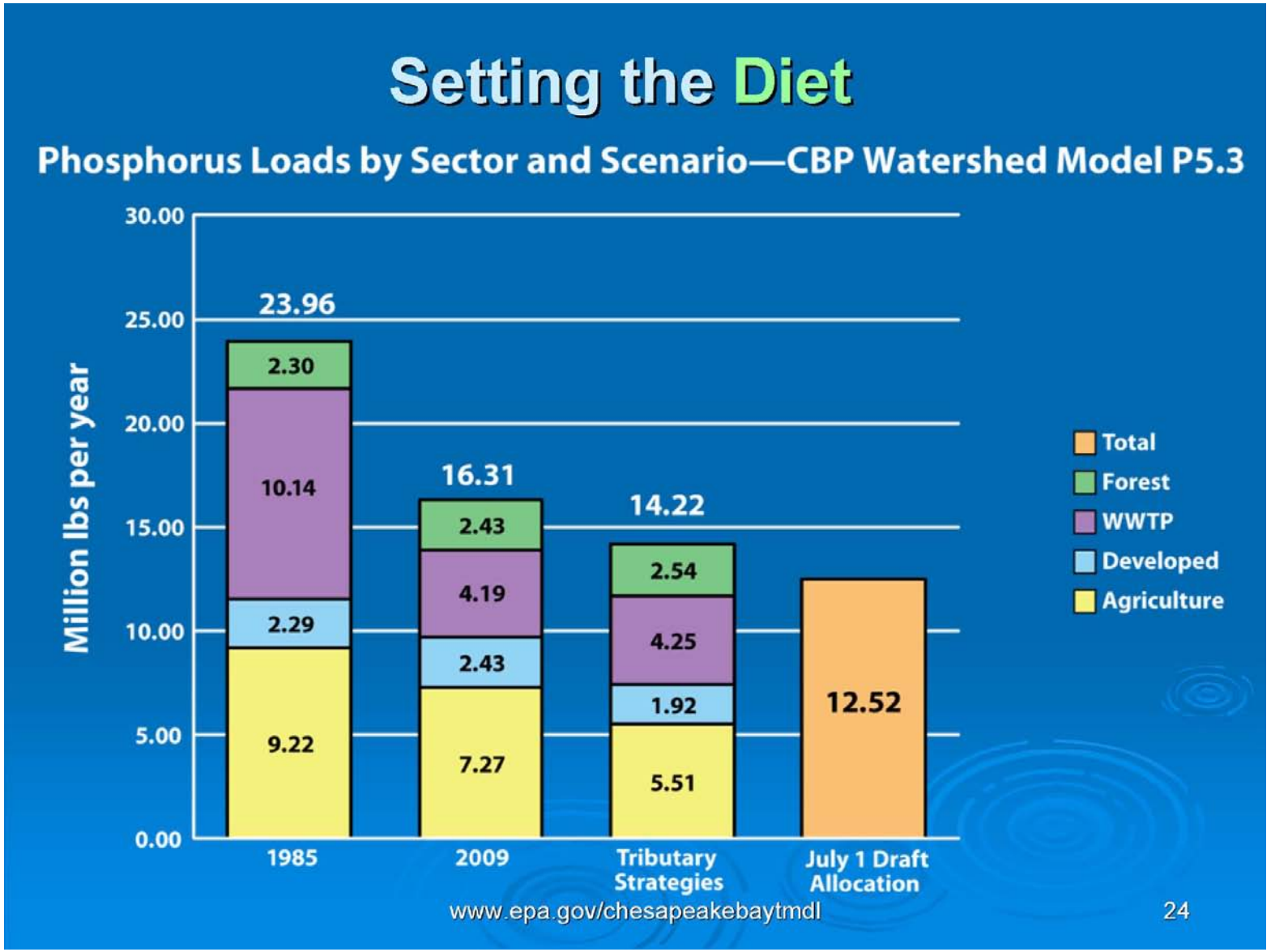
Jurisdiction	Basin	Nitrogen draft allocations (million lbs/year)	Phosphorus draft allocations (million lbs/year)	Sediment draft allocations (million lbs/year)
Pennsylvania	Susquehanna	71.74	2.31	1,758.20
	Potomac	4.72	0.42	233.93
	Eastern Shore	0.28	0.01	21.12
	Western Shore	0.02	0.001	0.37
	PA Total	76.77	2.74	2,013.62
Maryland	Susquehanna	1.08	0.05	62.94
	Eastern Shore	9.71	1.09	169.70
	Western Shore	9.74	0.46	170.38
	Patuxent	2.85	0.21	90.12
	Potomac	15.70	0.90	682.33
	MD Total	39.09	2.72	1,175.47
Virginia	Eastern Shore	1.21	0.16	10.91
	Potomac	17.46	1.47	810.07
	Rappahannock	5.84	0.90	688.51
	York	5.41	0.54	107.09
	James	23.48	2.34	852.77
	VA Total	53.40	5.41	2,469.35
District of Columbia	Potomac	2.32	0.12	11.16
	DC Total	2.32	0.12	11.16
New York	Susquehanna	8.23	0.52	292.96
	NY Total	8.23	0.52	292.96
Delaware	Eastern Shore	2.95	0.26	57.82
	DE Total	2.95	0.26	57.82
West Virginia	Potomac	4.67	0.74	248.11
	James	0.02	0.01	16.65
	WV Total	4.68	0.75	264.76
Total Basin/Jurisdiction Draft Allocation		187.44	12.52	6,285.14
Atmospheric Deposition Draft Allocation		15.70	--	--
Total Basinwide Draft Allocation		203.14	12.52	6,285.14

a. Cap on atmospheric deposition loads direct to Chesapeake Bay and tidal tributary surface waters to be achieved by federal air regulations through 2020.

Pollution Diet by River




Nitrogen Loads by Sector and Scenario—CBP Watershed Model P5.3
Million lbs per year
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
308.0
46.4
90.1
27.1
150
243.3
49.3
53.2
31.4
109.4
189.7
50.8
44.3
23.1
71.5
187.4
1985
2009
Tributary Strategies
July 1 Draft Allocation
Total
Forest
WWTP
Developed
Agriculture
Draft allocation for atmospheric deposition is 15.7 million pounds, which will be achieved by federal air regulations through 2020.
www.epa.gov/chesapeakebaytmdl
23


Setting the Diet
Phosphorus Loads by Sector and Scenario—CBP Watershed Model P5.3
Million lbs per year
30.00
25.00
20.00
15.00
10.00
5.00
0.00
23.96
2.30
10.14
2.29
9.22
16.31
2.43
4.19
2.43
7.27
14.22
2.54
4.25
1.92
5.51
12.52
1985
2009
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Total
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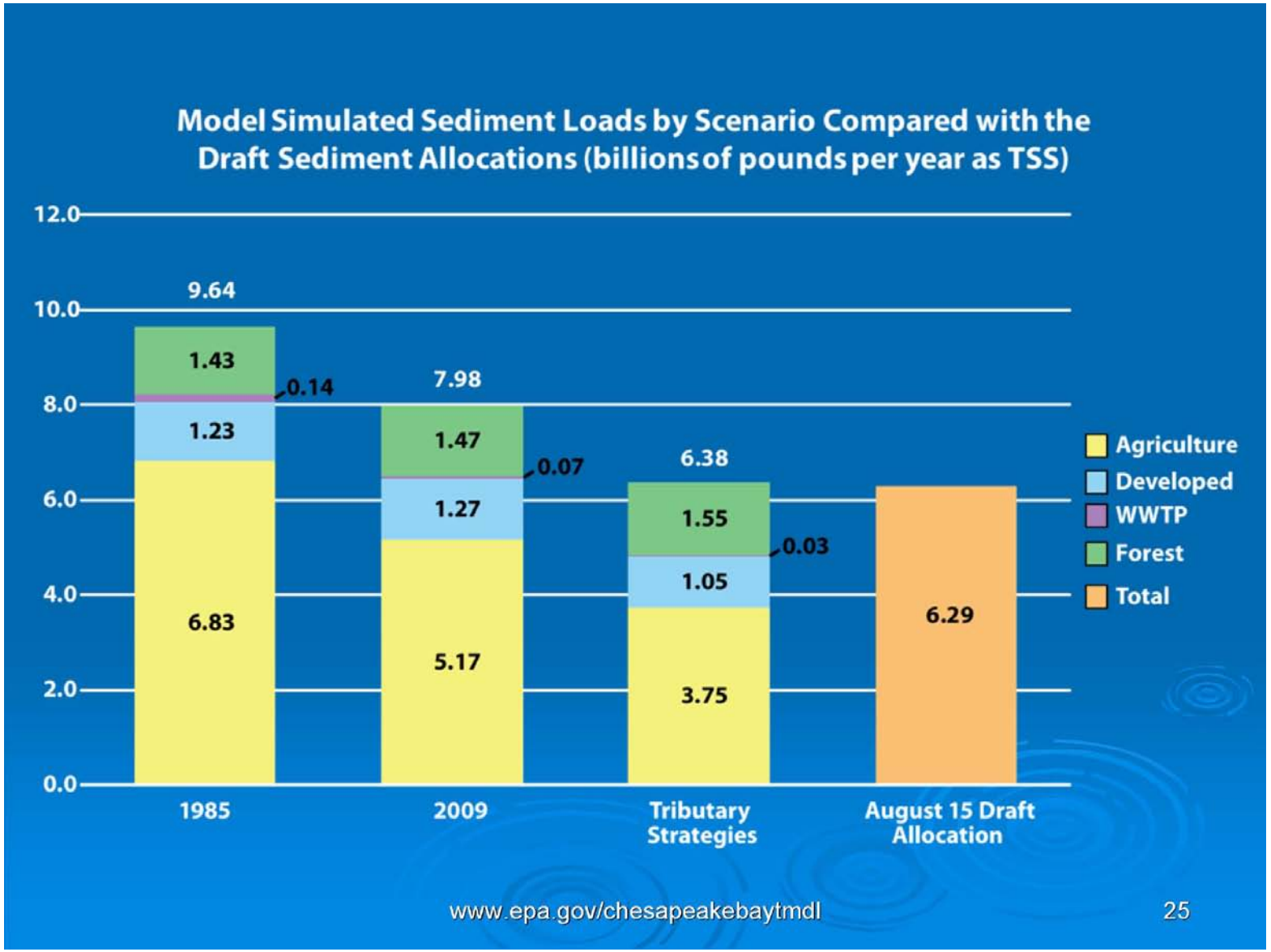
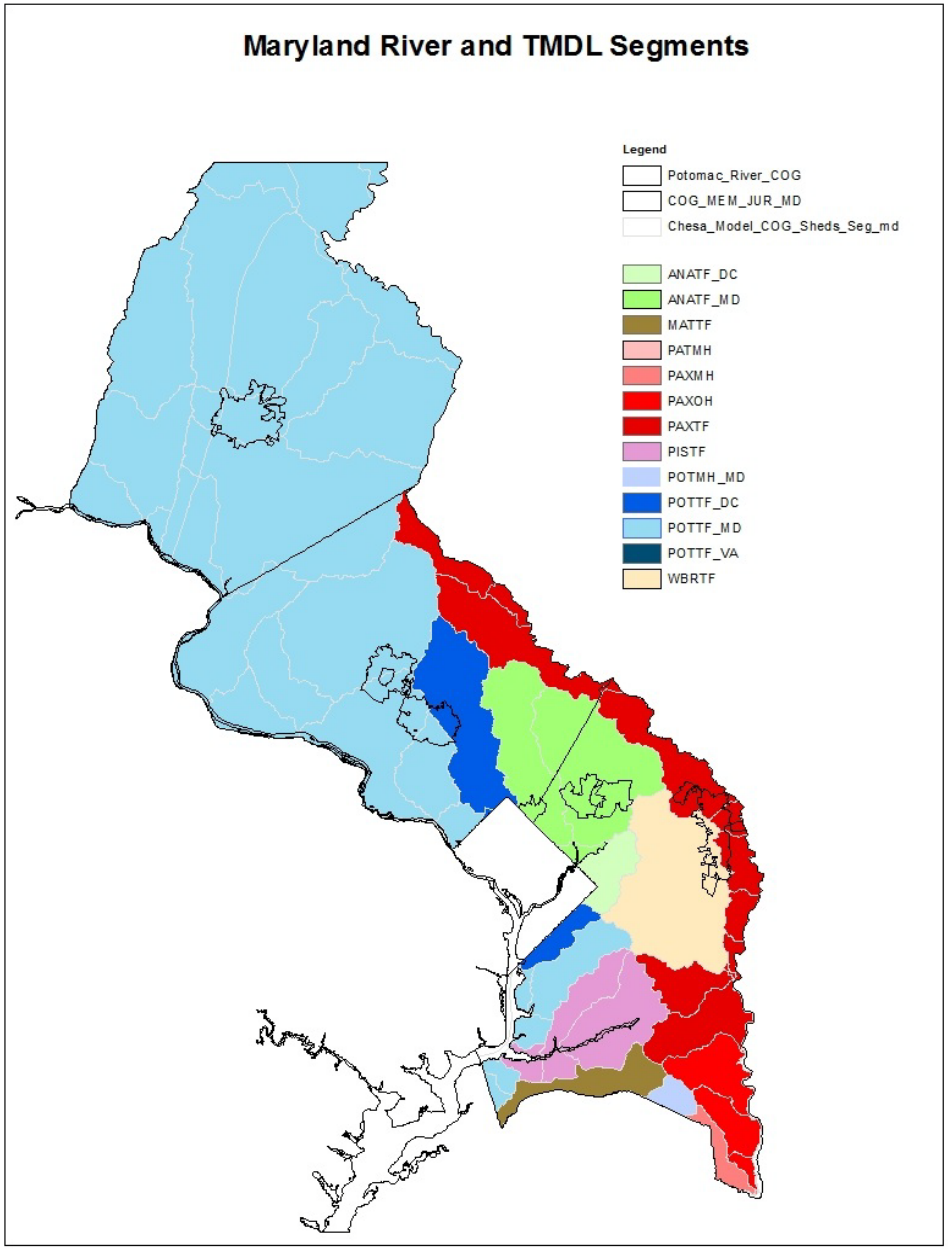

Model Simulated Sediment Loads by Scenario Compared with the Draft Sediment Allocations (billions of pounds per year as TSS)
12.0
10.0
8.0
6.0
4.0
2.0
0.0
9.64
1.43
0.14
1.23
6.83
7.98
1.47
0.07
1.27
5.17
6.38
1.55
0.03
1.05
3.75
6.29
1985
2009
Tributary Strategies
August 15 Draft Allocation
Agriculture
Developed
WWTP
Forest
Total
www.epa.gov/chesapeakebaytmdl
25

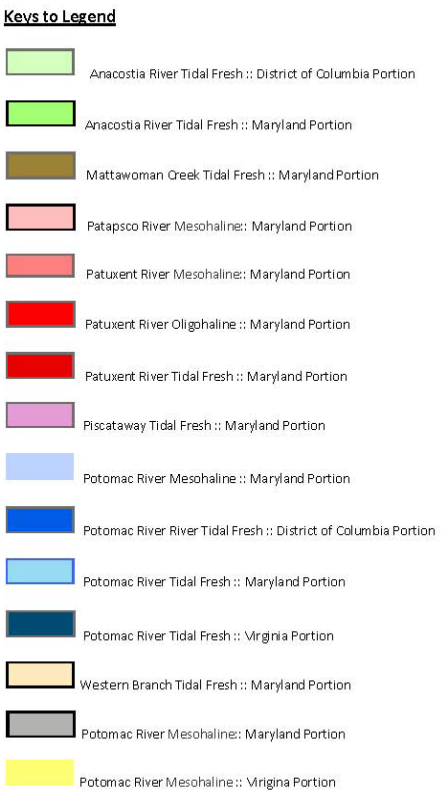
Segment-sheds in COG region

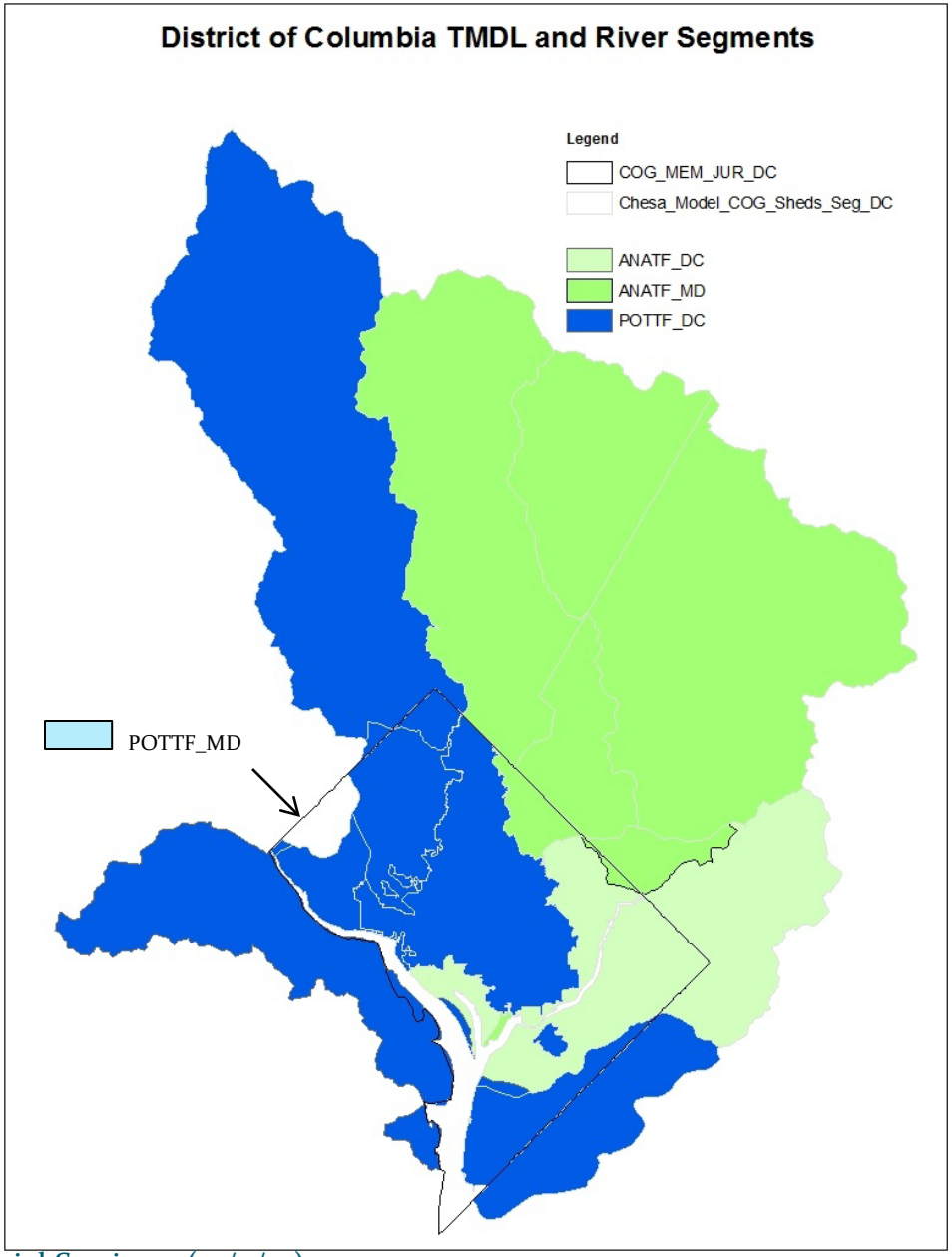
Keys to Legend

- Anacostia River Tidal Fresh :: District of Columbia Portion
- Anacostia River Tidal Fresh :: Maryland Portion
- Mattawoman Creek Tidal Fresh :: Maryland Portion
- Patapsco River Mesohaline:: Maryland Portion
- Patuxent River Mesohaline:: Maryland Portion
- Patuxent River Oligohaline :: Maryland Portion
- Patuxent River Tidal Fresh :: Maryland Portion
- Piscataway Tidal Fresh :: Maryland Portion
- Potomac River Mesohaline :: Maryland Portion
- Potomac River River Tidal Fresh :: District of Columbia Portion
- Potomac River Tidal Fresh :: Maryland Portion
- Potomac River Tidal Fresh :: Virginia Portion
- Western Branch Tidal Fresh :: Maryland Portion
- Potomac River Mesohaline:: Maryland Portion
- Potomac River Mesohaline :: Virigina Portion



Segment-sheds in COG region





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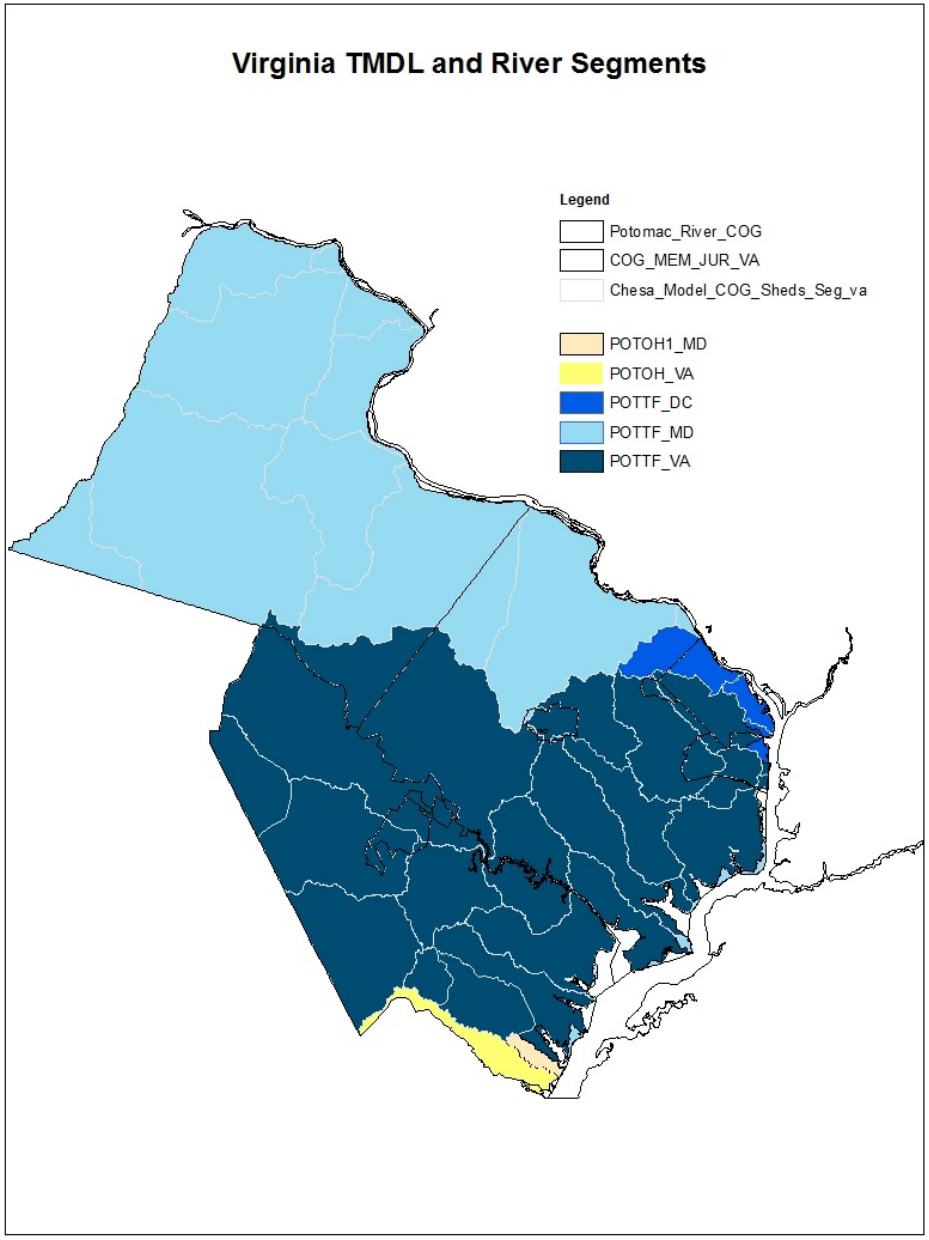


Segment-sheds – COG Region

- Defined by impaired water-segments and its contributing watersheds
- TMDLs defined for each segment-shed
- Counties/District generally have multiple segment-sheds, e.g.,
  - District (4)
  - Montgomery (5)
  - Prince George's (7)

Segment-sheds	DC	MD	VA
ANATF_DC	X	X	
ANATF_MD	X	X	
POTTF_DC	X	X	X
POTTF_MD	X	X	X
POTTF_VA		X	X

'State' Draft Phase I WIPs - Overview

- No changes since September 10th WRTC briefing
- Public Comment period – parallel with EPA's TMDL

- Draft Phase I WIPs:
  - Maryland – No details at local level
  - Virginia – No details at local level; used sector/stakeholder process
  - District – Local details (inherent); also a Bay Partner

Maryland - Draft Phase I WIP Overview

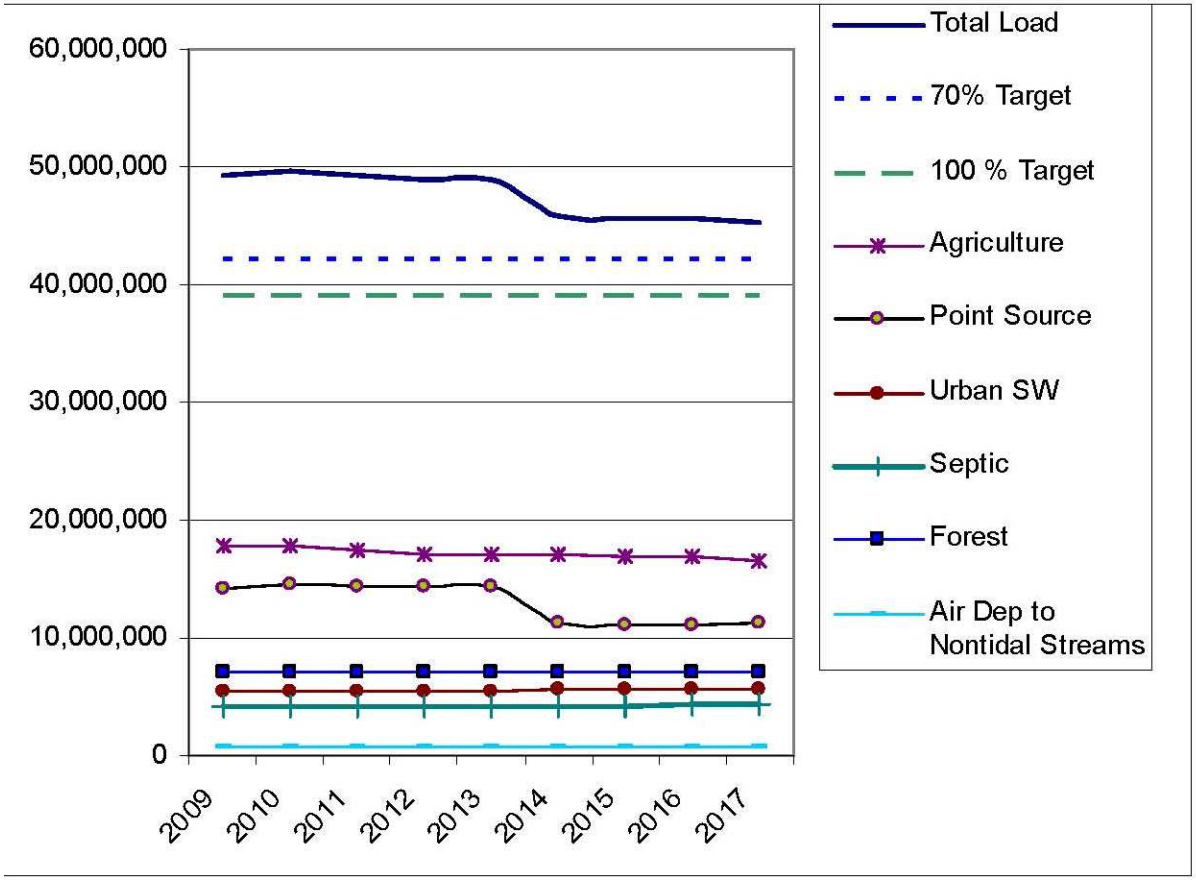
- Statewide approach
  - Source sector allocations originally not broken out by segment-sheds; now that CBP model output available, some minor adjustments between basins necessary
- Identify two (Maryland-only) targets
  - 70% interim target by 2017 (not 60 %)
  - 100% target by 2020 (not 2025)
- "Gap 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

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
- 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

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



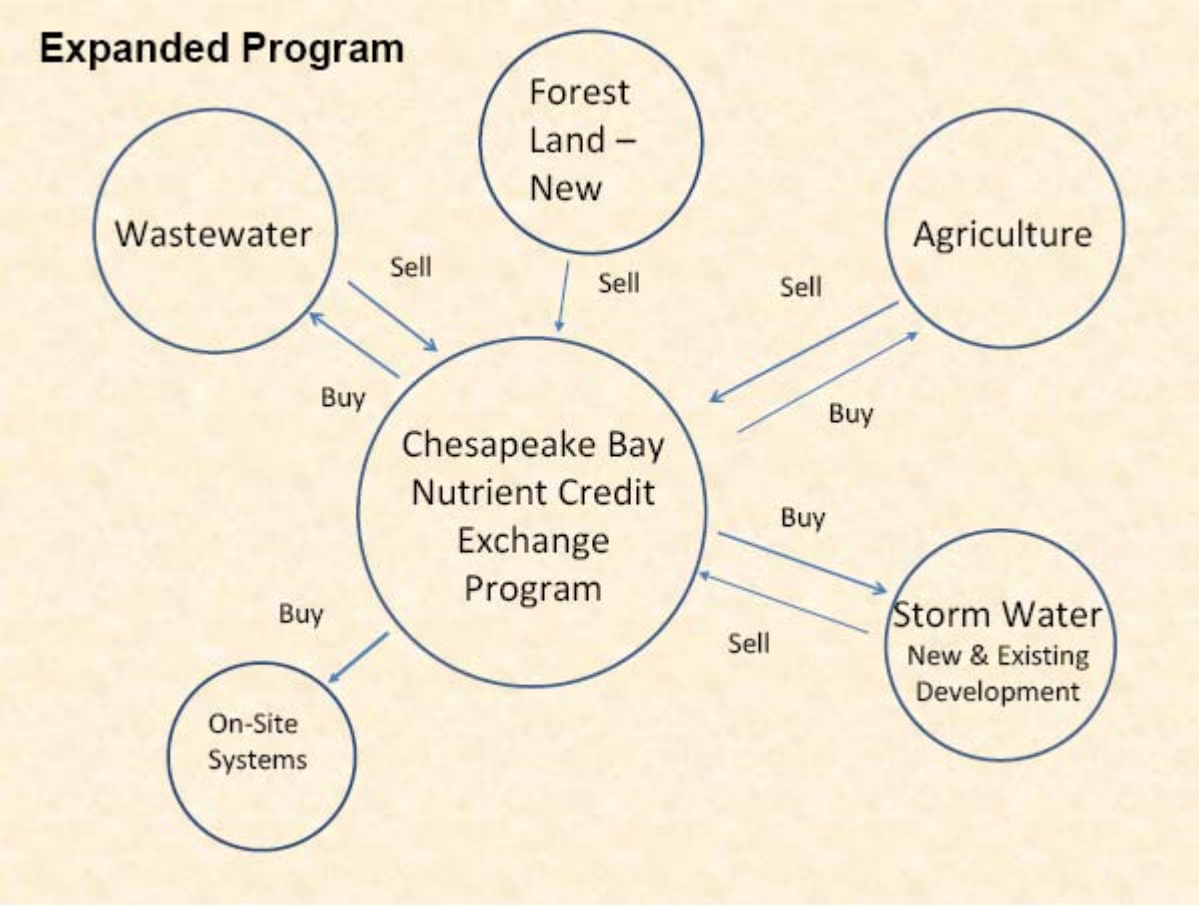
- Wastewater projections based on existing ENR agreement schedule
- Ag projections based on extending 2-year milestone reductions into future
- Urban projections based on extending past performance of MS4 communities
- Analysis accounts for future growth in loads, e.g., septics

Virginia - Draft Phase I WIP Overview

- Statewide approach:
  - Source sector allocations
  - Proposed allocations broken out by Major Basin segment
- Identified two target time frames:
  - 60% interim target by 2017
  - 100% target by 2025
- Focus on nutrients:
  - Achievement of sediment allocations assumed by nutrient reduction actions
- "*Adaptive Management*" is heart of document:
  - Development of Expanded Chesapeake Bay Nutrient Credit Exchange Program
  - Gap Analysis by major sector to close 2017 and 2025 gap

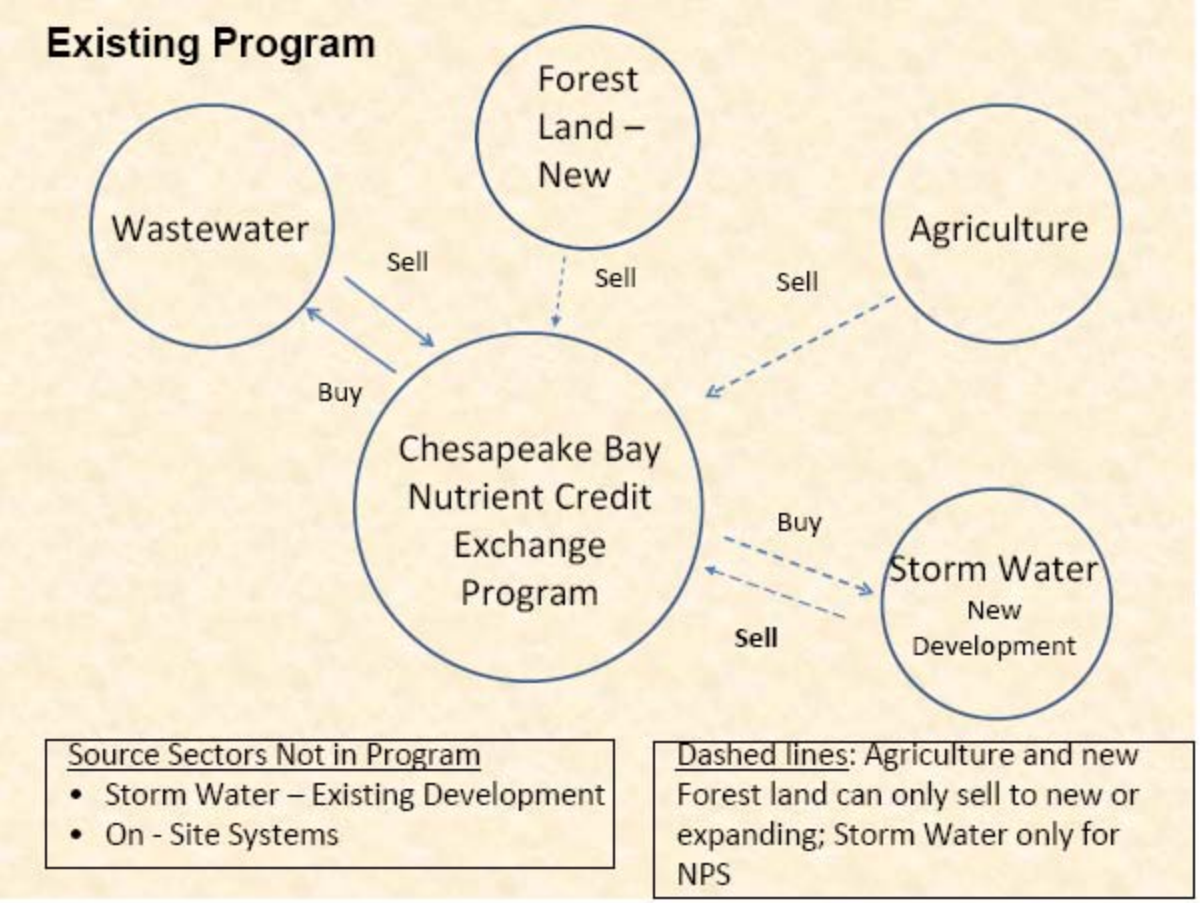
VA WIP - Reliance on Trading

Existing Nutrient Credit Exchange Program



VA WIP - Reliance on Trading

Proposed Nutrient Credit Exchange Program



District - 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

Bay TMDL – WIP Evaluation

- EPA evaluated WIPs according to 2 main criteria
  - Achieving pollution targets for segment sheds
  - Providing "reasonable assurance"
- Overall, EPA found none of the WIPs provided adequate assurance
  - Inadequate strategy for filling gaps
  - Limited enforceability/accountability
  - Few dates for action
- Most of the WIPs did not add up to adequate reduction levels
- Therefore, EPA identified federal 'Backstops' based on actions for which federal regulatory authority exists – IF final Phase I WIPs are not strengthened

Do WIPs meet the allocations?

Jurisdiction	Nitrogen	Phosphorus	Sediment
DC	✓	✓	
DE			✓
MD	✓	✓	✓
NY			✓
PA	✓		
VA			✓
WV		✓	

Bay TMDL – How do the WIPs Stack Up?

- DC – Meets for nutrients, not for sediment
  - 'Minor' backstops involving MS4 permit currently under negotiation
- MD – Meets statewide allocations for nitrogen, phosphorus and sediment
  - 'Minor' adjustments needed between basins
- VA – Meets for sediment, not for nutrients
  - 'Moderate' backstops to include 50% retrofit by current and expanded set of MS4 permittees, increases in regulated agriculture (CAFO) practices and stricter nutrient limits for certain WWTPs (James River basin)

Federal 'Backstops'

- Based (mostly) on actions for which there is existing federal authority, i.e. wastewater, MS4 and CAFO permits
- EPA is not wedded to these actions; will remove if states can redo their final Phase I WIPs to eliminate the need for them
- Not based on cost efficiency – retrofits are far more expensive than many agricultural practices
- Designed, in part, to spur state action to pass new regulations, expand funding, etc.
- Have the potential to permanently alter allocations among LA sources and WLA sources

President's Executive Order

- Executive Order 13508 (May 12, 2009)
- Final 2011 Action Plan (September 30, 2010)
  - Defines multiple-agency coordination, actions & funding
  - Seeks to support investments in communities & local economies
- Key Initiatives (examples)
  - Restore Water Quality (implementation of **Bay TMDL**)
  - Additional of direct interest to COG region:
    - Respond to **Climate Change** (identify/assess/provide data)
    - Strengthen Science (enhance monitoring, assess new threats – **Emerging Contaminants** - specifically in Potomac watershed)
    - Restore Clean Water (**federal agencies** to contribute/lead by example; funding for stream restorations)
    - Develop **Environmental Markets** (for a suite of ecosystem services)

Implications for Local Governments

- Source Allocations – Phase I TMDL may establish final ratios even if numbers change
  - Ag (LA) v. MS4 Urban (WLA)
  - MS4 Urban (WLA) v. non-MS4 Urban (LA)
  - CAFO Ag (WLA) v. non-CAFO Ag (LA)
- Stormwater Permitting – Likely to result in more stringent requirements for all permittees, particularly for expensive retrofits
- Growth – Will affect playing field for growth in urban and rural areas through wastewater caps, septic policy and stormwater requirements; & potential constraints due to sub-allocations of wastewater loads at some plants

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

VA WIP - Urban Stormwater Retrofits

- State draft unclear about whether retrofits were expected, but allocations appeared to require “LOT”
- State may have seen trading (expansion of Nutrient Credit Exchange Program) as solution
- Bay Program evaluation cited over-reliance on trading, lack of “stringent requirements, enforceable standards”
- Under hybrid TMDL, EPA substituted MD approach – 50% retrofit for all urban land under MS4 permit and expansion of MS4 authority to 50% of currently unregulated urban land

What's Next?

- CBPC presentation to COG Board October 13th
  - Authorization to submit comments under policy framework
- COG staff to work with CBPC executive committee members to expand themes into formal comments
  - Organized by four COG Board adopted Policy Principles
  - Review by WRTC and CBPC (and potentially air committees)
  - Comment on EPA's TMDL & MD/VA Draft Phase I WIPs
    - District WIP – Unique role, & Blue Plains' multi-state/multi-user aspects – Address via other mechanisms
- **Final comment submission by November 8th**

COG Policy Themes

- **Holistic Requirements**
  - Cost-Benefit & Feasibility Considerations
  - Allow for Maximum Implementation Flexibility
  - Growth Policies to Support Infill Development
  - Efforts Consistent with Meeting Other Environmental Objectives
- **Equitable Responsibility**
  - Revisit/Revise Deadlines &/or Allocations if Needed (i.e., Adaptive Mgmt.)
  - Require Greater 'Reasonable Assurance' from Agricultural Sources
  - Must Enhance/Expand Funding if Current Deadlines to be Met
  - Federal Sector to Match or Exceed State Standards
- **Sound Science**
  - Portray Nonpoint Source Allocations as 'Preliminary'
  - Distinguish Between Meeting Water Quality Standards vs. 60 & 100% Implementation Goals
- **Communication & Voice**
  - Continue Outreach & Stakeholder Involvement (Phase I – III)
  - Ensure Local Governments & Utilities have Greatest Flexibility to Achieve Goals

Policy Options for Local Governments

- Public comment jointly and individually
  - EPA seems set on backstops in lieu of major WIP restructuring
- Pursue federal legislation
  - Another look at Cardin bill ?
  - Other alternatives
- Pursue state legislation
  - Support more regulation or funding for agriculture ('Reasonable Assurance')
  - Support for viable trading mechanisms
- Litigation
  - Several actors rumored to be readying lawsuits challenging the terms of the TMDL