

Chesapeake Bay Total Maximum Daily Load and Watershed Implementation Plan

Presented to
Hampton Roads Planning District Commission
September 15, 2010



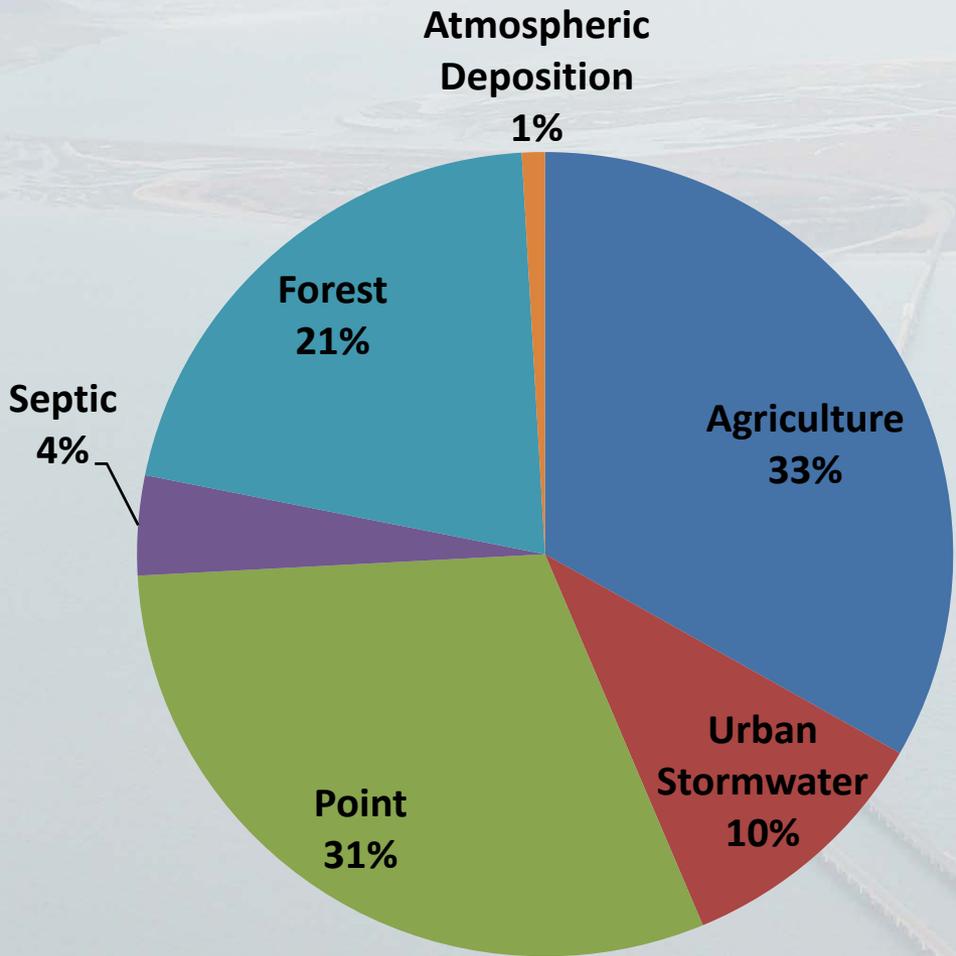
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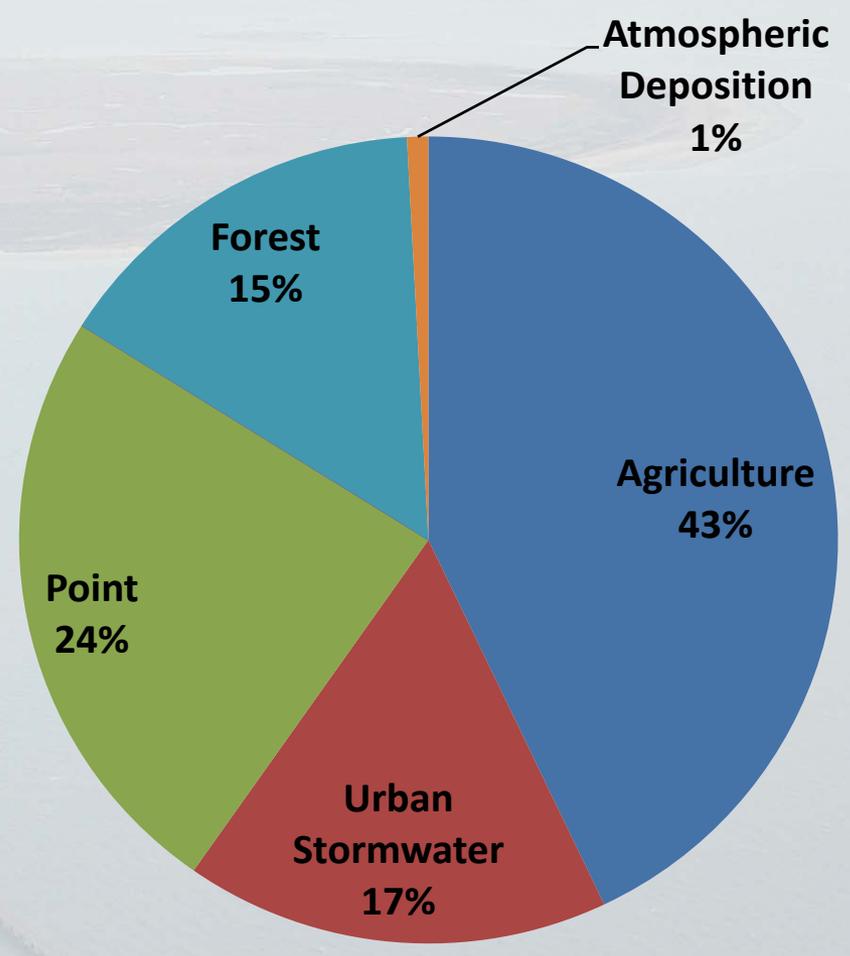
Total Maximum Daily Load Background

- Maximum amount of pollution a waterbody can receive and meet state water quality standards
- Nutrient and sediment loads determined through series of environmental models
- EPA establishing binding limits on nutrient (nitrogen and phosphorus) and sediment pollution

Bay Pollution Sources



Sources of Nitrogen



Sources of Phosphorus



VA Watershed Implementation Plan

1. Evaluate potential for source reductions.
2. Divide EPA nutrient loads among the sources.
3. Use EPA model to determine if scenarios meet nutrient targets.
4. Translate EPA loads into Waste Load Allocations for point source permits.

TMDL Schedule

Date	Action
July/August 2010	EPA released Nutrient and Sediment Loading Targets
September 1, 2010	State Draft WIPs Due
September 24, 2010	Draft TMDL and WIPs Available for Public Comment
October 7, 2010	1pm: Webinar at HRPDC 6pm: Hampton Public Meeting
November 8, 2010	Comment Period Ends
November 24, 2010	Final WIPs Due
December 31, 2010	Final TMDL
June 2011	Draft Phase II WIPs Due



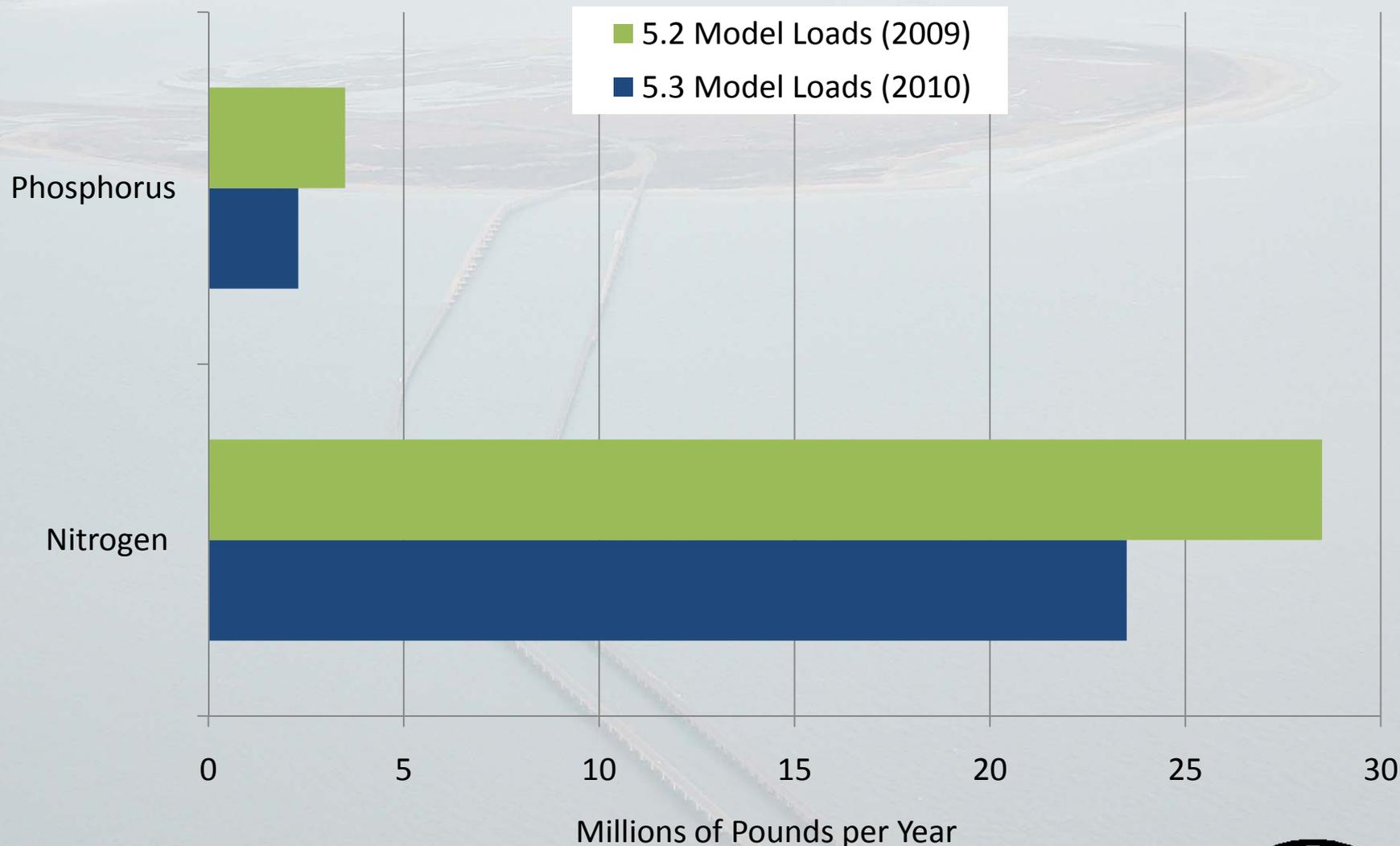
Regional Approach

- Establish legal standing to preserve ability to appeal the TMDL.
 - Comment on flaws in the TMDL development.
- Determine cost and feasibility of meeting the pollutant reductions.
 - Quantify cost of nutrient and sediment reductions.
 - Quantify potential for pollutant reductions from existing development.

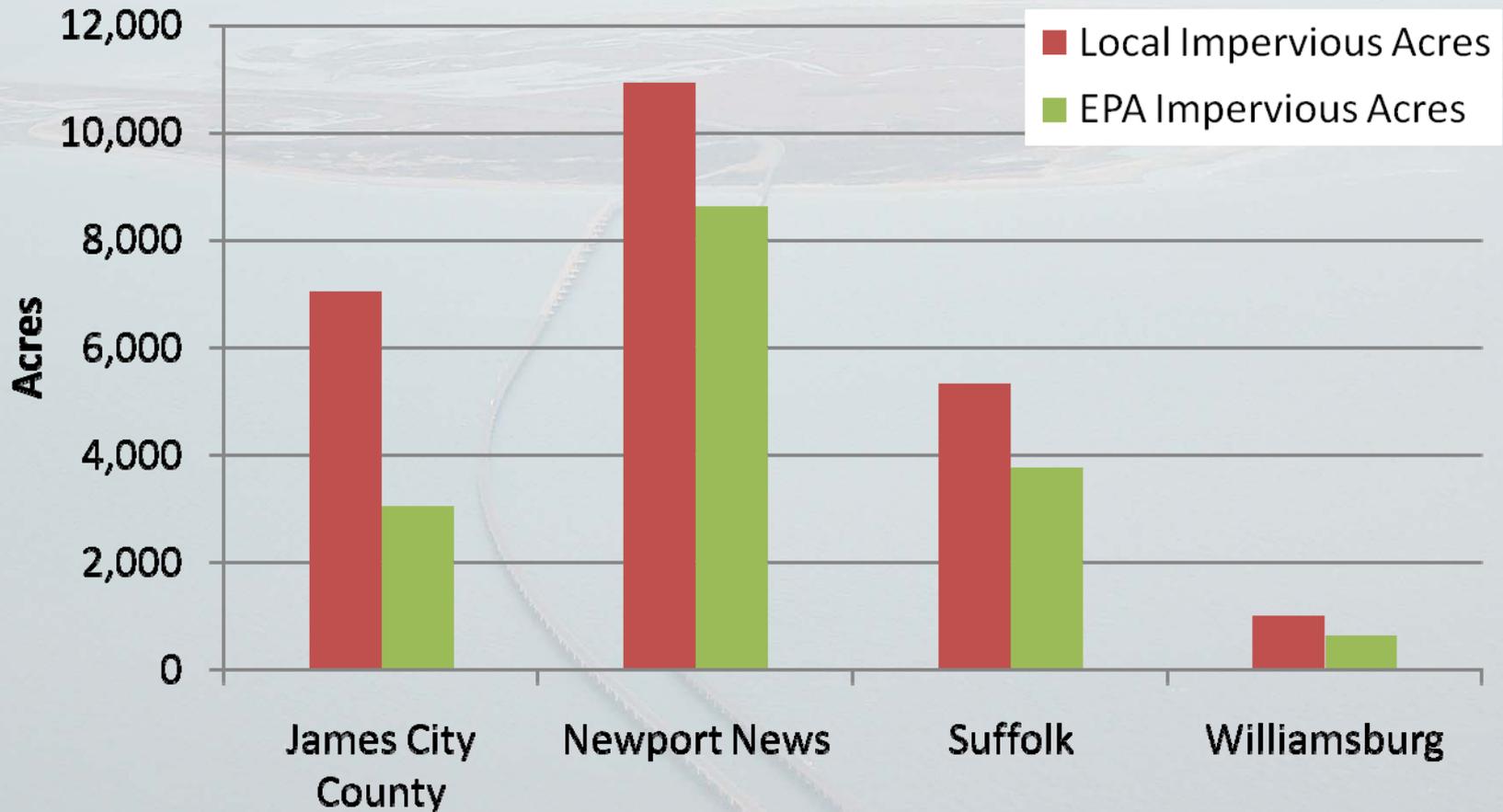
Major Issues with TMDL Development

- TMDL development timeline
 - Consent order deadline May 2011
- Timeline for implementation
 - 15 year implementation schedule not required
 - Shorter timeframe more costly
- Changing nutrient targets
- Inaccurate land use data
- James River chlorophyll a standard

Nutrient Targets in the James River



Inaccurate Land Use Data





James River Chlorophyll *a* Standard

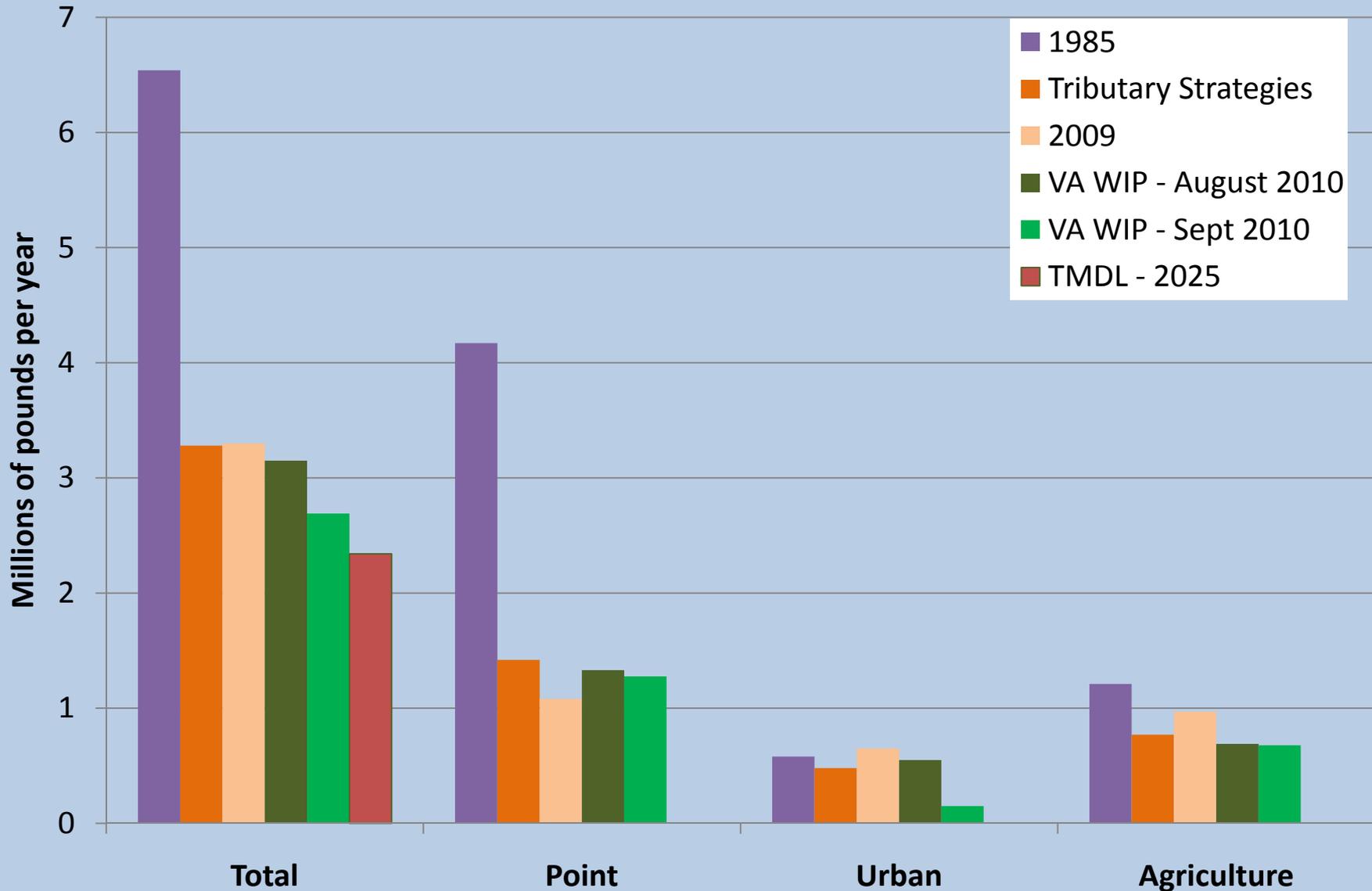
- Reductions in the James River were based on chlorophyll *a* water quality standard
- Nutrient reductions required to meet chlorophyll *a* standard are beyond what is required to meet dissolved oxygen in Chesapeake Bay
- Modeled reductions in chlorophyll *a* are too small to be detectable in real world or have ecological significance

Determine Cost and Feasibility

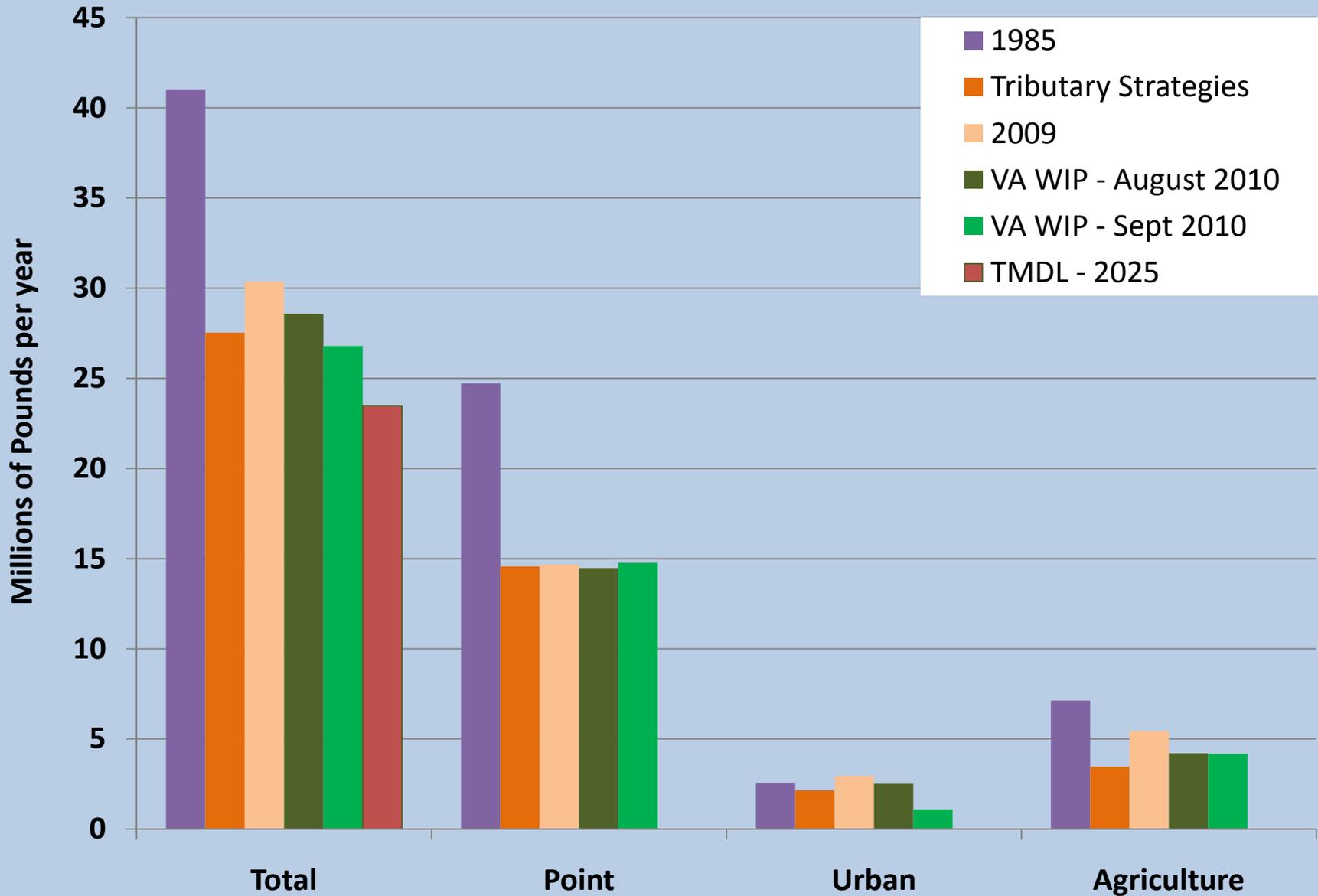
Current Status

- Significant progress since 1985
- Nearly achieved tributary strategy goals
 - Significant wastewater nutrient reductions
 - Failed to meet water quality standards
- Further nutrient reductions needed in stormwater and agriculture

James River - Phosphorus Loading



James River - Nitrogen Loading



Cost and Feasibility of Urban Nutrient Reductions

- How much will it cost to meet EPA's reductions?
- Are reductions to existing development feasible?
 - BMPs on public lands
 - BMPs on private property
 - Buy credits from Agriculture or Waste Water Treatment Plants

Impact to Region

Wastewater: Higher rates

- Region has invested more than \$300 million in capital projects to meet 2011 nutrient limits
- Wastewater treatment rates have increased 86% over past 5 years to meet 2011 nutrient limits

Impact to Region

Urban Stormwater: Higher costs

- No net increase in nutrient loads for new development
- Nutrient reduction requirements on existing development through MS4 permits
 - BMPs on redevelopment
 - BMP retrofits for existing development

Urban Stormwater Costs*

Locality	Low intensity urban retrofits		25% Ultra-urban retrofits		50% Ultra-urban retrofits	
	Annual Capital Costs	Annual Maintenance Costs**	Annual Capital Costs	Annual Maintenance Costs**	Annual Capital Costs	Annual Maintenance Costs**
Phase I Stormwater Permittees						
Chesapeake	\$2,900,000	\$145,000	\$4,000,000	\$200,000	\$5,000,000	\$250,000
Hampton	\$2,300,000	\$115,000	\$3,100,000	\$155,000	\$3,900,000	\$195,000
Newport News	\$2,300,000	\$115,000	\$3,300,000	\$165,000	\$4,300,000	\$215,000
Norfolk	\$3,900,000	\$195,000	\$5,700,000	\$285,000	\$7,400,000	\$370,000
Portsmouth	\$1,600,000	\$80,000	\$2,200,000	\$110,000	\$2,800,000	\$140,000
Virginia Beach	\$4,000,000	\$200,000	\$5,500,000	\$275,000	\$7,000,000	\$350,000
Phase II Stormwater Permittees						
Isle of Wight	\$330,000	\$16,500	\$450,000	\$22,500	\$570,000	\$28,500
James City	\$580,000	\$29,000	\$770,000	\$38,500	\$950,000	\$47,500
Gloucester	\$280,000	\$14,000	\$370,000	\$18,500	\$450,000	\$22,500
Poquoson	\$130,000	\$6,500	\$140,000	\$7,000	\$160,000	\$8,000
Suffolk	\$980,000	\$49,000	\$1,400,000	\$70,000	\$1,700,000	\$85,000
Williamsburg	\$140,000	\$7,000	\$190,000	\$9,500	\$250,000	\$12,500
York	\$830,000	\$41,500	\$1,100,000	\$55,000	\$1,400,000	\$70,000

* As calculated by Malcolm Pirnie based on February 2010 draft source allocations.

** Based EPA estimate the O&M costs are 5% of capital costs.



Next Steps

- Refine comments on TMDL
- Collect data and conduct analysis
 - Support comments on TMDL and WIP
 - Calculate cost increases to stormwater programs for locality budgets
 - Determine need for enabling legislation

TMDL Schedule

Date	Action
September 15, 2010	HRPDC Meeting
September 24, 2010	Draft TMDL and WIPs Available for Public Comment
September 27 – October 8	HRPDC Sub-committee Meeting
October 20, 2010	HRPDC Commission Meeting
November 8, 2010	Comment Period Ends
November 24, 2010	Final WIPs Due
December 31, 2010	Final TMDL

Recommended Action

Appoint sub-committee to develop detailed comments that address Hampton Roads localities' concerns

- Sub-committee to bring proposed comments back to HRPDC at October meeting for submittal by November 8, 2010